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Original Communications.

THE PROPHYLAXIS OF GONORRHŒA.

BY EDWARD MARTIN, M.D.*

SINCE it is now well established that gonorrhœa depends upon a specific micro-organism,—the gonococcus; and, since it is well known that the gonococcus must gain entrance into the urethra and lodgement there before it can proliferate, penetrate to the deeper layers of the mucous membrane, and excite an acute urethritis, preventive treatment must be accomplished either by the exclusion of micro-organisms from the urethra or their removal shortly after they have entered, or their destruction and removal before they have extensively invaded the mucous membrane.

The exclusion of micro-organisms can, of course, be accomplished in but two ways,—first, by avoiding exposure; second, by the wearing of a clean protector during intercourse. Unfortunately, the majority of men greatly prefer the risk of infection to adopting either of these certain preventive methods.

The removal or destruction of the micro-organisms that have once entered the urethra may be favored and at times accomplished in

* Clinical Professor of Genito-Urinary Surgery, University of Pennsylvania.

a number of ways. It is well known that the gonococcus is, excepting under favoring circumstances, a micro-organism of comparatively low vitality, that even the feebly acid urine inhibits its growth, and that a moderately-congested, perfectly healthy mucous membrane, through which urine has recently been passed, cannot readily be inoculated with the micro-organism. It is known that a slightly alkaline soil and a lessened cell resistance, dependent upon prolonged congestion, are distinctly favoring factors to the development of these micro-organisms. It is true that not only is the acid urine poisonous to the gonococci, but it will also destroy the vitality of the spermatozoa; hence, during sexual excitement, to counteract this acid, there is poured out from the urethral glands a clear, viscid, slightly alkaline fluid, which bathes the entire mucous canal, which counteracts the acidity of any urine which may moisten the tube, and which, in case gonococci are introduced from without, acts as an excellent culture material for their growth. Hence it is readily seen that prolonged sexual excitement, by encouraging a free flow of this alkaline fluid, and by lessening the local cell resistance, puts the soil in the most favorable condition for the growth of germs, should they be introduced.

That secretions remaining in the vagina of the female are drawn into the meatus of the male during coitus can scarcely be doubted; the mechanical arrangement of the parts is such that this is well-nigh inevitable. Moreover, in corroboration of this, Wendt (quoted by Finger) states that certain voluptuaries, who masturbated in warm milk, found that, when next they came to urinate, a few drops of milk poured from the urethra before the urine followed. It is almost certain that matter introduced into the urethra during coitus extends no farther back than the navicular fossa. It is probable that during ejaculation the violent outward flow of semen carries away nearly all of this matter, leaving only that which has obtained lodgement in the lacuna magna.

It is sufficiently apparent that any cause which prolongs the sexual act or diminishes cell resistance will act as a distinct predisposing factor to gonorrhœa; and conversely, intercourse rapidly accomplished and not repeated greatly lessens the danger of contracting the disease. Unfortunately, most men consider that comparative immunity is under such circumstances purchased at too great expense. Gonococci having entered the urethra, methods of getting rid of them or of destroying their vitality must be considered.

Undoubtedly the best method of accomplishing this is by forced urination. Before coitus the bladder should be moderately full, and immediately after the act is accomplished urination should follow, the stream being interrupted from time to time by pressing a finger against the meatus, so that the urethra may be widely dilated, and the acid urine may gain access to its crypts and follicles. Frequently a single emission is not followed by subsidence of erection, the penis not becoming sufficiently flaccid to allow of urination until two or three organisms have been experienced. Of course, under such circumstances, the risk of contracting gonorrhœa is greatly increased; but it is probable that even in these cases the disease can be avoided in the very great majority of instances by prompt urination in the manner already described.

The efficacy of this plan seems to me well proven. I have recently, however, tried to collect some figures in regard to it. Forty-five cases of recent gonorrhœa were questioned upon this point; nearly all carefully washed immediately after connection, but only five urinated.

This at first glance would seem to clearly demonstrate the efficacy of this method, but before such a conclusion can be drawn, it is necessary to obtain some figures in regard to the number who did not urinate and did not contract the disease. This, of course, is scarcely possible, yet, I believe, the number is comparatively small. The great majority of men who have escaped gonorrhœa state that the immediate passage of the water after connection is a means upon which they most firmly relied. The figures quoted above, while pointing to the fact that forced urination is probably a fairly efficient means of prevention, show that it is not absolutely reliable, since five out of forty-five—that is, about eleven per cent. of the whole number—contracted the disease in spite of urinating. None of these, however, interrupted the stream, so that the urethra might be widely dilated. The efficiency of forced urination might be still further increased by the administration, before exposure, of some urethral antiseptic, such as salol or copaiba.

Another means of prophylaxis has in some circles obtained considerable popularity,—namely the injection of a germicidal solution

immediately after coitus. Upon the value of this method I have no figures. I know, however, that there are many who rely implicitly upon it, and who have employed it for years. Since nature has already supplied an antiseptic lotion, which has the advantage of flowing from behind forward, and which is absolutely non-irritating to the mucous membrane, injections from the meatus would seem unnecessary. They would have the disadvantage of possibly forcing contagious pus far back into the urethra. Moreover, if such injections were of efficient germicidal strength, they would probably occasion inflammation, with a resultant exudation, which would afford abundant culture-material for any micro-organisms which might by chance escape contact with the drug. These theoretical objections can be practically met by injecting the lotion so that it reaches only the first one and a half or two inches of the urethra. This may be accomplished by compressing the urethra with the ring and middle fingers of the left hand, while the injection is being made. The danger of driving the micro-organisms backward, moreover, will be greatly lessened if the patient urinates before making his injection. The danger of exciting inflammation may be almost neutralized by the employment of very weak antiseptic lotions, such as bichloride of mercury, 1 to 10,000 ; carbolic acid, 1 to 1000, or, what, according to Dr. Joseph Leidy, seems to be a favorite injection material, pinus canadensis, 1 to 8.

The advantage from this method of treatment seems to lie in this,—that although the greater part of the contagious matter taken into the urethra is almost certainly washed away by emission or urination, a small number of gonococci may gain lodgement in the lacuna magna, where, lying out of the direct stream of the urine, they are protected from the latter because the opening of the licuna is directed forward ; hence, while ordinary urination may clear out everything else, it may leave infecting matter at this point. A forcible injection from in front backward would be much more liable to penetrate this large follicle than would the stream of urine flowing in the opposite direction.

The value of prophylactic injection is, then, not positively determined, but if given in weak solution after urination, and so administered that it reaches only the first inch of the urethra, it would seem to be a method of treatment worthy of trial.

If the disease germs are once implanted, there follows a period of from three to seven days during which they multiply in the superficial layers of the epithelium, until they become sufficiently numerous and penetrate to a sufficient depth to excite some local reaction. The first symptoms of which the patient will complain are slight itching and tickling at the meatus, and a scanty whitish discharge. If he is seen at this stage, before inflammatory symptoms become pronounced ; when the lips of the meatus are neither puffed nor everted ; when, under the microscope, the discharge is found to contain much epithelium and mucus, with a comparatively small amount of pus, prophylactic treatment may still be considered, for with these symptoms it is possible that the micro-organisms have not yet had time to penetrate so deeply that they are entirely beyond the reach of germicidal injection.

Diday has reported successes from this method of treatment, and I have been able to abort gonorrhœa in three instances, the diagnosis in each case having been previously confirmed by finding the gonococci. I have failed an equal number of times. The method of treatment is as follows: The diagnosis of gonorrhœa is first made by staining a cover-glass preparation of the discharge, and finding the gonococci. The patient is then instructed to urinate, and the surgeon, compressing the urethra one and a half inches behind the meatus, washes out the navicular fossa by means of a slightly alkaline lotion, such as a one per cent. aqueous solution of bicarbonate of sodium. He then fills a blunt-pointed syringe with an eighteen per cent. solution of nitrate of silver, with which he distends the first inch of the urethra several times, driving the injection material in with some force, holding it in for a minute, allowing it to flow out, and immediately repeating this treatment. The pressure of the ring and middle finger upon the urethra should be so firm that not a drop of the silver solution passes beyond this point. This injection is painful, but rarely occasions very great suffering. The severity of the pain may be greatly lessened by the use of cocaine. After the injection is made, the patient is given salol, five grains, six times a day, and is told that he will have a free flow of blood-stained pus for from three to five days, after which, if the treatment is successful, his discharge will become mucous, and will cease entirely in from seven to nine days. He must, however, be told that this method of treatment is unreliable ; that no promises

can be given that gonorrhœa will be aborted; that, if it is not aborted, the severity of the increasing stage will not be materially greater than it would be were this treatment not adopted.

Before credit can be given to this abortive treatment, the diagnosis of gonorrhœa must be positively established. There is a bastard form of urethritis, which undergoes spontaneous resolution in about a week. There can be no doubt that the majority of reported aborted gonorrhœas really belong to this bastard class. My experience in the following case shows the necessity for exercising great care in such observations:

A young man came to me with a history of having exposed himself to venereal disease five days before. He experienced no symptoms until the morning of the day he reported. He then noticed a slight whitish discharge, and felt a little itching at the meatus. Beyond the slight discharge, there were almost no symptoms. The case seemed a typical one in which to try the abortive treatment. I first stained a cover-glass preparation of his discharge, and found what I took to be gonococci, but surprisingly abundant for this early stage of the disease. It was at night-time. I had mislaid my higher object-glass, and therefore, not being absolutely certain, laid aside the cover-glass for further examination. I injected, however, in the manner described above. Pus and blood flowed from his urethra for three days. On the sixth day he reported back cured, and during several months since that time has had no return of the discharge.

On examining some days later the cover-glass preparation made of his discharge, not a single gonococcus could be found. There were, however, great colonies of a short club-shaped bacillus, grouped in twos. This was, without doubt, a case of bastard gonorrhœa, which would have recovered itself with less inconvenience to the patient had it been let alone. Yet the period of incubation was here the same as for ordinary gonorrhœa. Using the abortive injection in the manner I have described, I have not observed that the cases in which the method failed ran any more severe course than they ordinarily do when no such method is tried. Under no circumstances should this abortive treatment be so applied that the injection is forced throughout the entire anterior urethra. In at least one case in which injection was thus applied the patient subsequently suffered from almost every possible complication of the disease. It must also be remembered that puffed, everted lips of the meatus, a free purulent discharge, frank inflammatory symptoms distinctly contraindicate any attempt at abortive treatment. Dr. Lainé has told me that he has twice used the abortive treatment, but without success in either case.

Closely connected with the subject of prophylaxis is the source from which gonorrhœa is derived. In female infants vulvovaginitis of gonorrhœal origin is by no means uncommon. There may be an inflammation of these parts entirely unassociated with the gonococcus, such as is often observed in scrofulous babies, but the acute inflammation of the vulva, urethra, and vagina, lasting several weeks, occasioning much distress, and associated at times with tenderness of the womb and sharp bellyache, is always due to the gonococcus. Contagion is in many of these children, perhaps the majority of them, not due to criminal practices, but is carried by means of the clothing, the bath, or the soiled fingers of attendants.

Gonorrhœa, as observed in the male adult, is due, with very rare exceptions, to coitus, or to unnatural methods of intercourse, which afford but slight protection against contracting the disease. The teaching is very common that clap is much more frequently acquired from "snaps"—that is, women who fornicate either from desire or amiability—than from harlots, including under this title all women who receive money for their favors. This belief is probably dependent upon the teaching of continental surgeons, who, living in countries where there is exacted by law a rigid medical inspection of registered women, of course find that fewer cases of disease can be traced to these women than to women who practise clandestine—that is, unlicensed—prostitution.

I have lately inquired as to the source of gonorrhœa in eighty cases; in more than half of these cases the disease was acquired from professional harlots. I have never examined a public woman who did not exhibit the traces of chronic inflammation, either of the urethra, of the cervix uteri, or of both these mucous channels, though it is true that on examining the discharges in these cases gonococci were rarely found. There is certainly not a single house of prostitution in Philadelphia where an efficient medical surveillance is exercised over the women. Hence I believe that the security which is often felt by patients in resorting to brothels is without justification. Women who are generous in

the local use of water, particularly that containing antiseptic substances, such as bichloride of mercury, 1 to 10,000, who, after irrigation of the vagina, place a clean sponge or cotton tampon, so that any discharge from the cervix cannot escape into the vagina during intercourse, and who practise their trade under such circumstances that their partners are able to practise ablution and urination immediately after coitus, are, of course, less liable to convey disease than when coitus is accomplished without preparatory flushing out and opportunity for subsequent cleansing. When the professional harlot neglects perfect cleanliness, I believe she is more dangerous than her non-mercenary sister.

The means of preventing gonorrhœa may then be summarized as follows:

1. The wearing of a clean, strong protector.

2. Urination on the part of the woman before coitus, and copious irrigation of the vagina with bichloride of mercury solution, 1 to 10,000, followed by a vaginal tampon applied close to the cervix.

3. Forcible urination immediately after coitus, the stream being repeatedly interrupted by pressing the finger against the meatus.

4. The use of strong nitrate of silver injection, on the first appearance of discharge, before inflammatory symptoms are developed, eighteen grains to the ounce, injected forcibly, so that the first inch of the urethra is fully distended, the rest of the urethra being protected from the application.

5. On the part of the woman, gonorrhœa is best prevented by the insertion before coitus of a cotton tampon sufficiently large to occlude the upper part of the vagina and prevent the entrance of any matter into the os uteri, and by immediate urination after coitus with copious lotions and vaginal injections of hot bichloride of mercury solution, 1 to 10,000.

6. Vulvo-vaginitis of children is best guarded against by exercising care in regard to attendants, especially those who have to do with the washing of such children. When a single case develops, it should be separated from healthy children as would one ill from any other contagious disease.

7. As methods of prophylaxis the value of which is not yet determined may be mentioned the administration of antiseptic substances, such as salol, by the mouth and the injection of the first inch of the urethra with a mild antiseptic solution immediately after coitus.

PEROXIDE OF HYDROGEN AS A THERAPEUTIC AND DIAGNOSTIC AGENT.

By E. Stuver, M.S., M.D., Rawlings, Wyoming.

DURING the last few years so many articles have been published in which the indications for, and the results obtained from, the use of peroxide of hydrogen have been given, that anything further on that subject may be deemed superfluous. While, for a large number of physicians, this may be true, still, owing to the great conservatism of our profession, and the immense number of new remedies clamoring for recognition and adoption, many really valuable remedial agents receive but a passing glance, and are forgotten by the great majority of readers. While considering these facts, and the remarkably satisfactory results I have obtained from the use of this remedy, it occurred to me that a short article on this subject might not be entirely without value.

A *reliable* preparation or solution of peroxide of hydrogen is one of our most potent germicidal agents; it is also an excellent deodorizer, but its most characteristic property is the extreme avidity with which it combines with and decomposes pus. No matter where situated, or how small the quantity, the presence of pus is at once indicated by the effervescing, foaming action produced by the oxidizing power of the peroxide of hydrogen. This peculiar property renders it exceedingly valuable in deodorizing and cleansing foul ulcers, abscesses, or any pathological condition attended by a discharge, and especially so if the pus is tenacious, adherent, and difficult to remove.

I have used this remedy with very satisfactory results in a large number of diseased conditions, especially those attended by suppuration, sloughing, or tissue necrosis of any kind. To be effective, however, the solution must be *fresh* and *active;* it should be kept in well-corked bottles and in a cool place, otherwise it rapidly deteriorates and becomes inert. The following are a few of the diseases in which I have used the remedy:

Diphtheria.—In this dread disease it yields excellent results; the foul odor is neutralized, the membrane becomes friable, less adherent, and often disappears in a few days, and the general symptoms of toxæmia are mitigated. Its value is increased by the addition of one grain of bichloride of mercury to from four to eight ounces of the solution. This mixture has probably no superior as a local application for diphtheria.

Gonorrhœa.—As an injection the following combination has yielded good results, viz.:

℞ Hydrargyri bichloridi, gr. i;
Hydrogenis peroxidi sol., f℥ii;
Aquæ, q.s. ad f℥vi. M.
Sig.—Inject, after urinating, two or three times a day.

In diseases of the *nose* and *throat* it has a cooling, soothing, cleansing, and disinfectant action. I prefer a solution of about one-third the ordinary strength, and a mixture composed of 1 part hydrogen peroxide and 2 parts concentrated, distilled extract of witch hazel (Parke, Davis & Co.'s) has acted very nicely in my hands.

I have also obtained very satisfactory results from the same mixture in gynæcological practice. With it the parts can be very promptly cleansed and disinfected. I have also used peroxide of hydrogen as a *diagnostic agent* to determine the presence of pus in deep-seated abscesses or inflamed glands, in which commencing suppuration was suspected. In such cases, especially when the abscess or gland is in close proximity to important structures, as in the inguinal and axillary regions, this agent may be made to render material assistance, and lessen the danger of wounding important vessels and nerves.

My method of procedure is as follows: Inject the peroxide solution, by means of a hypodermic syringe, into the suppurating cavity. This immediately produces oxidation of the contained pus, marked distention of the cavity, and stretching and elevation of the superimposed tissues, *thereby lessening the danger of wounding important structures.*

Before injecting the cavity, however, the surgeon should have everything in readiness to evacuate the abscess immediately when the distention occurs, otherwise unnecessary pain will be caused. The incision should be free, and the cavity thoroughly washed out with the peroxide solution until the foaming action ceases, and then dressed with bichloride of mercury gauze. I have in this manner operated on extensive suppurating buboes, which healed without a particle of subsequent suppuration, and, indeed, did not require any further attention. This result I attribute largely to the absolute cleanliness that can be secured by the peroxide solution, thereby placing the diseased part in the most favorable condition for speedy repair.

In conclusion, I would present the following summary:

1. A reliable solution of peroxide of hydrogen is an efficient and safe germicide.

2. By its oxidizing power it rapidly decomposes pus, diphtheritic membranes, and other pathological decayed products.

3. It is an excellent deodorizer and a non-irritating, cleansing agent for foul wounds, abscesses, etc.

4. It is a valuable diagnostic agent in determining the presence of pus, and by its use in operations the danger of wounding important structures can be lessened.

AN EXPERIMENTAL STUDY OF CERTAIN ACTIONS OF STRYCHNINE IN EXCITANT AND PARALYTIC DOSES.

By Edward T. Reichert, M.D.,* Philadelphia, Pa.

WHEN a one per cent. solution of sulphate of strychnine is injected into the external jugular vein of a dog, there occurs within a few moments a condition of muscular excitement, which rapidly passes to one of violent tetanic convulsions, and death ensues immediately from an arrest of respiration, or, after a time, from exhaustion. Should, however, forced artificial respiration be maintained at the time of the convulsive seizures and after, the spasms gradually disappear, the general condition of the animal becomes in most respects the same as just before the convulsions, and the effects of the poison slowly wear away. But if with the appearance of the convulsions the injection of strychnine is continued, the tetanus grows less and less violent, voluntary motion is lost, reflex excitability rapidly disappears, the spasms give place to somewhat rhythmical jerkings of the muscles, and these to twitchings, which, in turn, are lost, and the animal lies absolutely motionless, save for the movements due to artificial respiration and the heart-beats. The circulation, heat processes, and other important functions remain in good condition, and the dog may be kept alive for hours, if not for days, thus paralyzed, if strychnine is from time to time injected. These remarkable changes from the normal state to violent convulsions, and, finally, to complete motor paralysis, occur with such rapidity that the latter stage may be present within three minutes.

From this brief sketch it is obvious that the study of the actions of this interesting substance divides itself into a consideration of the phenomena occurring during the stage

* Professor of Physiology, University of Pennsylvania.

of excitement and of those during the stage of paralysis.

Apart from the directly associated train of symptoms which leads progressively to convulsions and the sequences, we have but little knowledge of the actions of strychnine. Its ability to cause convulsions in relation to its other powers is of such an extraordinary intensity that these serious disturbances are present long before many other important actions are developed. There is a decided lack of balance in the degrees of its different actions, and it is only by the aid of artificial respiration and the pushing of the poison to the stage of paralysis that the full complement of its physiological properties is obtained. Although the present research was pursued primarily solely as a study of the phenomena of the paralytic stage, the very evident lack of knowledge of all of the actions of smaller doses lead also to investigations with them.

In all of these experiments frogs or strong healthy dogs were used. The sulphate of strychnine was obtained from Merck. The injections, unless otherwise stated, were made into the external jugular vein, excepting in the case of frogs, when they were subcutaneous. Graphic records of the effects on the circulation and respiration were obtained by means of the kymographion.

The minimum fatal dose for dogs, when injected subcutaneously, is about .00025 gramme to the kilogramme of body-weight; and by the vein, about .0002 gramme to the kilo.

Part I.—The Actions of Excitant Doses.

Motor Phenomena.—After the ingestion of doses just sufficient to cause convulsions, there are observed more or less restlessness; an increase in reflex excitability, which becomes more and more marked; tremors; stiffness of the muscles, especially marked in the hind extremities, and exaggerated when movements of any kind are attempted; and, finally, typical tetanic convulsions, which are induced by the faintest sensory impressions, and may be of so violent a character as to arrest the respiratory movements by the intense persistent rigidity of the respiratory muscles, and cause death as an immediate result, or, after a time, from general exhaustion.

These phenomena, apart from a probable slight cerebral stimulation, seem wholly dependent upon a direct action of the poison on the spinal cord. That the convulsions are not of cerebral origin is evident in the fact that they are observed alike in anterior and posterior extremities after section of the cord in the upper dorsal region; that they are not peripheral is shown in their absence in the amputated leg of the frog after strychnine is injected into its vessels, and in parts protected from the poison by ligature of the vessels supplying them. Moreover, they can be produced in the frog, after the circulation has been destroyed, by the direct application of the alkaloid to the spinal cord.

The *sensory nerves* do not seem in the least affected. This is apparent if we destroy the brain of the frog, then ligate all of the vessels going to one hind leg, so as to prevent the access of the poison to the part, then give the strychnine, and test alternately, by means of very dilute acid, the time of the occurrence of the reflexes in each leg. In such experiments it will be found that the time of the reflexes in the poisoned and non-poisoned legs will correspond exactly until the motor nerves are impaired.

The *motor nerves* after minimum fatal doses are not affected until after the continuance of convulsions, and then show evident signs of depression. That their functional power is so impaired has already been noted by Matteucci, Moreau, Ambrosoli, Kölliker, Vulpian, and others. Klapp,* however, denies that they are affected, but his assertion is not borne out by his own records, which certainly indicate the contrary. Moreover, Richet† and Vulpian‡ have found that very large doses paralyze the motor nerves, which I have fully confirmed both in mammals and frogs.

The results of all investigators lead to the one conclusion that the motor nerves are depressed. The sole point open for dispute is whether the impairment of function is simply the result of exhaustion from excessive action, or whether the nerves are directly affected, or both. The experiments of Kölliker§ throw some light on this. Thus, he found that if he cut one sciatic nerve of the frog, and then gave the strychnine, the nerve thus protected would respond to electrical stimulus long after the other was completely paralyzed. These investigations I have repeated and confirmed, and have supplemented them with another series which proves conclusively that the

* *Journal of Nervous and Mental Diseases*, 1878, p. 619.

† *Compt.-Rend.*, xci. p. 131.

‡ *Ibid.*, xciv. p. 556.

§ *Virchow's Archiv*, Bd. x., 1856, s. 3.

failure of the motor nerves in animals poisoned with minimum doses is due entirely to the strain of over-activity. Thus, I have ligated the abdominal aorta, and in this way prevented the poison from reaching the nerves of the posterior extremities. One sciatic nerve was cut, and thus rendered inactive. In such experiments, after the convulsions, the cut and intact nerves exhibited the same phenomena as in the series of experiments by Kölliker. Careful testing of the muscles showed that they retained their normal degree of irritability. It is, therefore, apparent that since the poison did not reach the motor nerves, the impairment of function must have been due solely to overwork.

There can be no doubt that strychnine in sufficient quantity is a direct poison to the motor nerves, but the dose necessary to elicit this action is far in excess of the minimum lethal quantity. Martin-Magron and Buisson,* Richet, and Vulpian have found that the motor nerves may thus directly be poisoned. This fact I have confirmed by my own investigations, as will be shown later in the paper.

The Circulation.—Although the actions on the circulation have been studied in various directions by several investigators, the doses which they employed were generally sufficient to cause convulsions immediately, or within a few minutes, and, as a consequence, we find no satisfactory records of the effects of sublethal quantities. Richter,† Mayer,‡ Schlesinger,§ and Denys‖ have found that a marked rise in the blood-pressure and an increase in the pulse-rate occur about coincidentally with the onset of convulsions. In all of Klapp's experiments, however, while the increase of pressure was noted, the heart-beats were invariably diminished. The simultaneous occurrence of these effects and convulsions suggests a dependence of the former on the latter, but that this is only accidental is proven by the appearance of the same changes in the circulation when animals are rendered absolutely motionless with curare.

While these phenomena would naturally suggest that the pressure and pulse would be affected in a similar way, if at all, by smaller doses, carefully conducted experiments elicit results to the contrary. The records of my experiments show that the effects before, during, and after the convulsive paroxysms are in some respects dissimilar, and, accordingly, demand separate studies during these respective periods.

* *Journ. de Physiologie*, 1860, p. 342.
† *Zeitschrift f. Rat. Med.*, 1863, s. 76.
‡ *Medizinische Jahrbücher*, etc., Wein, 1872, s. 111.
§ *Ibid.*, 1874, s. 1.
‖ *Archiv f. Exper. Path. u. Phar.*, 1885, s. 306.

THE PULSE.

The Preconvulsant Period.—The effects produced during the period antecedent to the appearance of convulsions, or what may be termed the therapeutic effects of the drug, are well illustrated in the earlier portions of the records of Experiments 5, 6, and 7 on curarized animals. In all of these the primary doses were insufficient to cause convulsions, yet enough to produce decided symptoms.

In Experiment 1 the first dose was a little less than one-fourth of the minimum fatal quantity. This caused a decided increase in the pulse, with lower curves, and a temporary fall of arterial pressure. The pulse-rate then gradually declined, falling much below the normal, the beats being stronger, and the pressure was at the normal standard. At the end of nineteen minutes the pulse had sunk from 162 to 114 per minute, but the pressure remained normal. A second injection of a similar quantity was followed by a slight increase in the pulse-rate, with stronger beats and a similar rise of pressure. The pulse slowly fell to 108 at the end of thirty minutes, and remained steadily at this point for twenty minutes, while the pressure remained slightly in excess of the normal. A third injection of double the preceding quantity again caused a transient increase in the pulse and a subsequent fall to even a lower level, but the pressure was unaffected. At the termination of an hour a fourth dose further increased the pulse without altering the pressure. A fifth dose lowered both, and the final dose brought on tetanus, accompanied by a rise of pressure and a frequent pulse. The pulse, excepting during the first eight minutes until the time of the last injection, was decidedly diminished; but the pressure, save during the first three minutes, was scarcely noticeably increased.

In Experiment 2 the first dose was about two-thirds of the lethal amount. This was sufficient to induce well-defined general symptoms, and even convulsive movements, within six minutes. The primary effect on the pulse was a marked augmentation; and the secondary effect, a diminution, which continued throughout the experiment. The pressure, which was at first unaffected, grad-

Experiment 1.—Dog; weight, 9.07 kilos.

Time. min. sec.	Dose. grammes.	Pulse per min.	Pressure. mm.	Respiration per min.	Remarks.
.00 } .58 }	.0004	162	132	36	
1.00	.....	.....	.....	...	Slight struggles.
3.00	.....	192	130	36	
8.00	.....	186	132	36	
14.00	.....	114	132	36	
19.00 } .28 }	.0004	114	132	36	Struggles.
21.00	.....	126	142	36	
24.00	.....	120	138	33	Heart-beats stronger.
30.00	.....	108	134	35	
45.00	.....	108	132	20	
50.00 } .53 }	.0008	108	136	18	
51.00	.....	118	136	24	Reflex excitability greatly increased.
55.00	.....	110	136	18	
60.00 } .31 }	.0004	105	136	18	
61.00	.....	129	136	18	Reflex excitability greatly increased; dog just on the verge of tetanus.
65.00	.....	148	136	20	
70.00	.....	126	136	21	
75.00 } .32 }	.0004	124	136	18	
76.00	.....	117	132	19	
83.00 } 84.02 }	.0008	144	140	21	
.14	.....	.....	.....	...	Tetanus, accompanied with a rise of pressure and a frequent pulse; death within two minutes.

Experiment 2.—Dog; weight, 16.781 kilos.

Time. min. sec.	Dose. grammes.	Pulse per min.	Pressure. mm.	Respiration per min.	Remarks.
.00 } .48 }	.002	126	152	15	
1.00	.....	156	152	24	Slight struggles; muscular stiffness; and increased reflex excitability.
3.00	.....	126	138	27	
6.00	.....	.....	.....	...	Convulsive movements; respiration deeper and more frequent; pressure and pulse increased during the paroxysm.
11.00	.....	113	138	22	Quiet; respiration deeper than normal.
20.00	.....	120	146	33	
25.00	.....	120	148	23	
30.00 } .33 }	.002	108	140	18	
.40	.....	.....	.....	...	Tetanus; pressure greatly increased (240 mm.); pulse very slow (42); respirations increased.
31.20	.....	.....	.....	...	Pressure falling, pulse frequent (120), followed by a decrease and death in a spasm.

Experiment 3.—Dog; weight, 16.78 kilos.

Time. min. sec.	Dose. grammes.	Pulse per min.	Pressure. mm.	Respiration per min.	Remarks.
.00 } .29 }	.002	128	150	27	Slight struggles.
.40	.....	144	160	21	
.52	.....	.....	150	37	Slight struggles; respirations shallow.
5.00	.....	126	150	37	
10.00	.....	114	150	36	
15.00	.....	121	142	40	
20.00 } .47 }	.002	120	136	46	
.52	.....	.....	.....	...	Tetanus; pressure rises rapidly; pulse greatly increased.
23.02	.....	.....	.....	...	Heart-beats feebly and frequently; pressure falling rapidly; death at 24 minutes and 13 seconds.

ually fell, and then almost recovered the normal standard. At the end of thirty minutes the pulse had sunk from 126 to 108, and the pressure was but twelve millimetres below the normal. A second injection of a similar normal, and finally went fourteen millimetres below normal, at which time the pulse was eight beats below the normal. A second injection brought on tetanus at once, during which the pulse and pressure were greatly

Experiment 4.—Dog; weight, 13.057 kilos.

Time. min. sec.	Dose. grammes.	Pulse per min.	Pressure. mm.	Respiration per min.	Remarks.
.00 } .42 }	.002	187	156	18	
1.00	.....	187	152	18	
3.00	.....	187	152	17	
5.00	.....	187	150	18	
10.00	.....	168	148	17	
.14 } .44 }	.002	.....	.....	...	
11.00	.....	168	148	16	
.10	.....	.....	.....	...	Struggles; reflexes much increased.
12.50	.....	216	144	20	Convulsive twitchings.
15.00	.....	138	140	13	Respirations deeper; marked rigidity.
20.00	.....	123	140	15	
23.00	.....	108	138	12	
.13	.....	.....	.....	...	Opisthotonos.
26.00	.....	119	138	18	
31.00	.....	120	144	18	
33.12	.....	.....	.....	...	Violent tetanus.
36.00 } .30 }	.002	.....	.....	...	
.32	.....	.....	.....	...	Violent tetanus, accompanied by an enormous rise in pressure (246 mm.), an increase in the frequency of the pulse, and deep respirations.
39.00	.....	.....	.....	...	Death.

Experiment 5.—Dog; weight, 9.74 kilos. *Curarized.*

Time. min. sec.	Dose. grammes.	Pulse per min.	Pressure. mm.	Remarks.
.00 } .38 }	.0005	111	92	
1.30	.....	110	94	
2.00	.....	123	116	
5.00	.....	96	97	Pulse-curves higher.
10.00	.....	96	102	
20.00	.....	114	134	
35.00	.....	114	180	
50.00	.....	114	182	
51.22 } .54 }	.0005	.....	.....	
53.00	.....	141	216	
54.00	.....	156	228	
60.00	.....	129	186	
75.00 } .30 }	.001	156	220	
76.00	.....	248	312	
79.00	.....	246	274	
90.00 } .38 }	.01	{ 222 / 102 }	{ 248 / 144 }	Pulse-curves higher.
95.00	.....	84	88	On stopping artificial respiration the pressure fell progressively.

quantity caused tetanus within forty seconds, a very slow, full pulse, and an enormous increase of pressure, which was soon followed by death.

In Experiment 3 the dose relatively was the same. The pulse was primarily increased and afterwards diminished. The pressure was at first slightly increased, then fell to the increased. This was followed by failing heart and pressure.

In Experiment 4 the relative dose was somewhat larger, but still sublethal. The pulse was not affected during the first five minutes, and then exhibited a decided tendency downward, and the pressure steadily declined. A second dose had no immediate

effect on pulse or pressure; but, in the course of three minutes, the former was greatly increased and the latter slightly diminished. A more or less steady fall was noted of both, so that at the termination of the thirty-first minute the pulse had fallen from 187 to 120, and the pressure from 156 to 144 millimetres. A violent convulsion then occurred; and a few minutes after, a third injection was practised, which gave rise within a few seconds

Experiment 6.—Dog; weight, 21 kilos. *Curarized.*

Time. min. sec.	Dose. grammes.	Pulse per min.	Pressure. mm.	Remarks.
.00 } .32 }	.0005	156	64	
1.30	.....	156	64	
2.00	.....	156	64	
3.00	.....	120	184	
5.00	.....	144	68	
10.00	.....	134	80	
20.00	.....	114	144	
30.00	.....	144	156	
40.00 } .30 }	.0005	150	118	
41.00	.....	162	152	
42.00	.....	147	116	
50.00	.....	156	116	
60.00	.....	162	116	
80.00 } .22 }	.0005	176	114	
81.00	.....	168	118	
90.00	.....	170	118	
100.00 } .40 }	.001	174	120	
115.00 } .32 }	.001	156	115	
116.12 } .31 }	.001	.....	.....	
.40	.....	.....	304	
117.00 } 119.30 }	.5	111	240	The last three injections caused a profound decline of pressure and a decrease in the frequency of the pulse, with higher curves.

Experiment 7.—Dog; weight, 24 kilos. *Curarized.*

Time. min. sec.	Dose. grammes.	Pulse per min.	Pressure. mm.	Remarks.
.00 } .50 }	.0025	126	90	
1.20	.....	.....	.....	No change in pulse or pressure until this time, when the pulse became much slower and the pressure increased rapidly, reaching a maximum in 12 seconds (1.32).
1.32	.....	57	240	Pulse-curves 13 times higher than normal.
2.00	.....	54	224	Pulse-curves still higher.
3.00	.....	114	224	Pulse-curves 6 times higher than normal.
4.00	.....	76	235	Pulse-curves higher than at last observation.
8.00	.....	84	220	
13.00	.....	87	210	
18.00	.....	186	156	
23.00	.....	216	144	The pulse-curves have steadily become smaller as the frequency is increased.
28.13	.....	.....	.....	The pressure began to rise without apparent cause, and reached at 28.43 a height of 236 mm., and then gradually declined, reaching 132 mm. at 34 minutes. The pulse was not apparently changed in force or frequency.
34.00	.....	220	132	
44.00 } .52 }	.0025	224	122	
.70	.....	180	244	Pulse-curves slightly larger.
50.00	.....	212	196	
60.00	.....	216	143	Stopped artificial respiration; the pressure fell steadily for 4 minutes, then rose to 168 mm., and finally declined.

to tetanus; an enormous increase in the pulse and a corresponding rise of pressure were noted.

It is evident from these results that the most important action of subconvulsant doses is to diminish the pulse-rate, and that this may be preceded by a more or less marked but transient increase; and, next in importance, to diminish the arterial pressure.

The results of these four experiments are typical examples of the actions of such doses, and while they are not absolutely uniform (as, for instance, in Experiment 1 the pressure was slightly increased, and in Experiment 4 no primary increase in the pulse was noted), the differences are fully explained by an analysis of the full course of actions and effects of the drug.

In the three experiments which follow, in which the dogs were curarized just sufficiently to abolish voluntary motion, the effects on the pulse are in accord with the results of the preceding experiments; but the pressure, instead of being lowered, was in every instance increased, and greatly so.

In Experiment 5 the first dose was about one-half the fatal quantity. The pulse was slightly increased at first, then diminished, and afterwards increased to about the normal standard, remaining at this point at the end of fifty minutes. The pressure, however, began to rise after the second minute, reaching 182 millimetres, or nearly double the normal, at the end of the fiftieth minute. The second and third doses served to increase both pressure and pulse greatly, and a final large dose caused a slow full pulse with a rapidly-falling pressure.

The results of Experiment 6, after the first dose, do not materially differ from those in the preceding, save that no preliminary rise in the pulse occurred, and in a greater and more permanent diminution, and by the more pronounced rise of pressure and its notable fluctuations. After the second dose, however, the pulse exhibited a decided upward tendency, and the pressure, while being increased for a few moments, remained practically constant. A third dose was without appreciable effect on the pulse, and the pressure was slightly increased. Several subsequent doses enormously increased the pressure and diminished the pulse.

In Experiment 7, in which the primary dose was about one-half of the minimum lethal quantity, the pulse was immediately and greatly decreased in frequency, but markedly increased in volume. The pressure at the same time rose rapidly and to a remarkable degree. The pulse then became irregular, and finally increased in frequency and diminished in volume until the normal rate was almost doubled. The pressure, however, steadily declined from the fourth minute, until at the twenty-eighth minute, when some inexplicable variations were noted. After the final dose the pulse-rate was momentarily much diminished and then slightly recovered, and finally steadily fell; but the pressure was greatly increased, reaching the highest point attained in the experiment, and then declined.

A careful comparison of the records of experiments on normal and curarized animals shows that in the latter the primary increase in the pulse-rate is not as marked, and that the pressure is invariably considerably increased. Doses which in normal animals cause a more or less marked diminution of pressure, or are without effect, exert a powerful influence in the curarized condition. The causes of these differences will be referred to later.

(To be continued.)

HAY-ASTHMA.

By Edward S. Blair, A.M., M.D., Correctionville, Iowa.

HAY-FEVER, or hay-asthma, is a disease whose cause is a question of as much interest and uncertainty to most practitioners as is its intractableness to treatment. Recent literature upon the subject of hay-asthma is not abundant, but occasionally the journals contain an article upon the subject, in which some one who has had occasion to combat this stubborn and excessively-annoying malady records with merited satisfaction his triumphs over it with some new remedy. In the December number of this journal, Dr. Alexander Rixa, of New York, presents an interesting article, in which he records excellent results from terpene hydrate. I have used terebene—a product of similar origin and composition—in bronchial affections and coughs, and with good results. I wish now to report, however, the result of an experiment with a remedy that has recently been introduced to my attention.

Euphorbia pilulifera is an herb which is a native of Australia and the West Indies. It is there regarded as an excellent remedy for coughs, colds, and, in fact, all affections of the respiratory tract. A sample of the fluid ex-

tract of this herb, together with other sample drugs, was sent me last summer. It chanced that I had under my care at that time a patient suffering from hay-asthma, who came to me under the following circumstances:

Ethel G., aged 10 years, a child of rather delicate constitution, had suffered for about five years with regularly-recurring attacks of hay-fever. The attack begins in August with the usual symptoms of lachrymation, redness, and swelling of the eyelids and face, copious secretion from the nose, and coughing. These symptoms with general malaise preceded, by a few days, the wheezing and difficult breathing. The patient is a resident of Northern Illinois, and had been sent to me, in Northern Iowa, with the hope that the change of residence might benefit or cure her. I began administering tonics to her, and, as we neared the time when the attack was wont to appear, put her upon the usual treatment of potassium iodide and grindelia robusta. The father had informed me of the exact day on which the attack usually appeared, and, carefully avoiding any mention of this time to the patient, I watched with interest the case, hoping the day would pass and the distressing symptoms not occur. The day did pass, and only a little redness of the eyes and other suspicious symptoms appeared; but, as night came on, and the little patient lay down to sleep, the dreaded wheezing and dyspnœa was on hand. The day would be passed with comparatively little suffering, but each night the asthmatic attacks would recur. I did not observe much benefit from the treatment I was pursuing, and just at this opportune moment came the sample of *Euphorbia pilulifera*. I was willing to try anything that offered hope of benefiting my patient. I at once put the remedy to the test, as it was recommended in cases such as I had in hand. The benefit obtained was prompt and decided. After taking the prescribed dose three times a day for a few days, the patient was allowed to omit it, and would go for days or a week without the symptoms returning. Upon showing themselves again, a return to the medicine had the same happy effect as before. The patient returned to Illinois in October. A four-ounce bottle of the fluid extract of euphorbia was given her, and the mother reports that the child has increased in flesh and strength, and spent the best winter of her life this winter. She reports having used the medicine in her family in all coughs and colds. It remains to be seen whether this remedy has produced any radical and permanent change in the system, such as to render it capable of resisting the influences which each autumn brings about in producing these distressing bronchial and asthmatic attacks.

AN ANOMALOUS ACTION OF THE SULPHATE OF HYOSCYAMINE USED AS A MYDRIATIC.

By G. E. de Schweinitz, M.D.*

THE following cases are reported because they illustrate a somewhat unusual result after the instillation of a mydriatic, in each of the cases the sulphate of hyoscyamine.

Case I.—A man, aged 24, in good general health, suffered from ciliary pain and occasional violent headaches, migrainal in type, associated with gastric disturbance and renal torpidity. Many of the headaches appeared to be due to over-use of the eyes. The eye-grounds were normal, with the exception of slight retinal haze veiling the margins of the disks, and some undue fulness of the central veins.

Sulphate of hyoscyamine, one-quarter of a grain to the drachm, was ordered for the purpose of correcting the error of refraction, which appeared to be a simple hypermetropic astigmatism. Two instillations were used,—one about the middle of the day, and one some time later in the afternoon. Within an hour after the last instillation the patient experienced a paroxysm of violent pain, which he described in these words; "I feel as if some one had a gimlet and was boring a hole in my optic nerve." The pinched features, the contracted brow, the clinched hands, and restless demeanor gave every evidence of his intense suffering. The pupils were widely dilated; there was no change in the eye-ground and *no increase of tension*. Unfortunately, no measurements were made of the degree of the ciliary paralysis. Eserine was instilled, and, although it did not neutralize the action of the mydriatic, the pain gradually subsided. Some time afterwards the patient's refractive error was corrected after cumulative instillations of homatropine. Not the slightest inconvenience resulted, and there was no return of pain.

Not a little at a loss to explain this occurrence, the details of the case were repeated to Dr. S. D. Risley, whose investigations of

* Professor of Ophthalmology in the Philadelphia Polyclinic; Ophthalmic Surgeon to the Philadelphia Hospital.

hyoscyamine and its use as a mydriatic I felt might throw some light upon the subject. He at once recalled a similar case in his own experience, where, an hour or two after the instillation of the same drug in the same proportion, precisely the same symptoms arose. When Dr. Risley visited the case, he reasoned that it was possible that the drug had failed not only to paralyze the ciliary muscle completely, but that this structure had been provoked into a state of tonic spasm; hence, if complete paralysis were quickly secured, the symptoms would be relieved. Acting on this idea, he repeatedly instilled into the eyes of the patient drops from the same solution which had provoked the pain, and was gratified to find that his theory had led him to the correct treatment. Relief followed very quickly, and there was no return of the trouble.

CASE II.—A man, aged 29, in good general health, and with no bad habits, except the excessive use of tobacco, presented himself on account of stubborn occipital headache and post-ocular pain, aggravated by the use of his eyes. The ophthalmoscope revealed on the right side a large round disk, a deep physiological cup, and a slightly woolly eye-ground, with some absorption of the retinal pigment epithelium. The refractive error was a simple hypermetropic astigmatism. In the left eye the disk was gray, coarse retinal striation being evident from the upper and lower margins, and the choroid was granular. The refractive error apparently was a mixed astigmatism. Hyoscyamine, one-quarter of a grain to the drachm, was prescribed. The next morning the patient appeared with every evidence of having passed a most uncomfortable night, and stated, curiously enough, almost in the exact words of the former patient, that he felt a pain which he should suppose was like that which would be produced by some one boring a hole in the back of his eye. The conjunctivæ were slightly hyperæmic, the veins of the forehead distended, and the face a little flushed. The intense pain which had existed through the entire night was becoming unendurable.

In spite of his pain, the patient was seated before the test-types, and selected the following glass: O.D. — 1.25^c axis 15 $\frac{6}{6}$; O.S. — 2.75^c axis 75 $\frac{6}{12}$. In other words, he accepted that glass which, judging from the ophthalmoscopic determination of the refractive error, indicated spasm of accommodation. Remembering the suggestion of Dr. Risley, I used an atropine-solution (four grains to the ounce), because I did not happen to have a hyoscyamine-solution at hand. In fifteen minutes after the instillation the pain was gone; in half an hour the uncomfortable flush of the eye had died out, and the man was relieved. He was again seated before the test-types, and now readily selected the following: O.D. + 1^c axis 100 $\frac{6}{6}$; O.S. + 1^s ○ — 2.75^c axis 80 $\frac{6}{6}$. The ophthalmometer confirmed the degree of astigmatism and the axis of the cylinder, and, after several days' use of the mydriatic, during which the irritatable condition of the eye-ground materially improved, this glass was ordered, and has since been worn with comfort.

Further comment on these cases seems unnecessary. It is evident that in all of the cases a cramp of the ciliary muscle took place and occasioned the intense pain of which the patients complained. As soon as full ciliary paralysis was secured the cramp was relieved.

THE PATHOLOGY AND TREATMENT OF TETANUS, INCLUDING A SERIES OF INVESTIGATIONS IN REGARD TO THE MICRO-ORGANISM OF THE DISEASE AND THE INFLUENCE OF DISINFECTANT SUBSTANCES ON THE SAME.

A STUDY FROM THE PATHOLOGICAL LABORATORY OF THE JEFFERSON MEDICAL COLLEGE.

BY D. BRADEN KYLE, M.D.*

(Continued from page 98.)

CULTIVATION EXPERIMENTS.—The experiments made from the case of traumatic tetanus described were from (1) blood collected on a handkerchief (not sterile) from a slight bleeding at the nose (epistaxis), from which the patient suffered on the second day of the disease. The part containing the blood-stains was cut out and placed in sterilized water. After soaking for six hours, six tubes we inoculated with the fluid. In twenty-four hours, at a temperature of 80° F., the tubes showed slight growth, varying in color and form, showing the cultures to be contaminated. From each of the six tubes, tube-plates were made, which, in thirty-six hours, at a temperature of 80° F., showed numerous localized colo-

* Assistant Demonstrator of Pathology in the Jefferson Medical College.

nies of different growth. After development of each, stains were made, and the microscope revealed the pure cultures of cocci, the staphylococcus pyogenes aureus and albus, but the remaining slides showed mixed cultures of bacilli and cocci of different sizes and forms. From the tubes showing contamination, tube-plates were made, three from each tube, and, after development, five removals were made from each colony. These were cultivated from tube to tube until the eighth generation of each tube was reached, stains being made from each tube as it developed. By this method two more pure cultures were obtained,—*i.e.*, staphylococcus pyogenes citreus and proteus. The other tubes showed bacilli of different dimensions; tube-plates were made of these, and by removals, by scratch- and stab-cultures, two pure cultures were obtained, one of which grew both aërobic and anaërobic. From the odor of one, and by microscopic appearance, it proved to be the bacillus pyogenes fœtidus; and, after a series of removals and cultivation, both aërobic and anaërobic, by stab-culture and by pure hydrogen growths, the other proved to be the bacillus of tetanus, as described by Nicolaiev. Stains were made from each culture, which, at the same age, from different tubes, showed the same microscopic appearance. These experiments were confirmed by Dr. David Bevan.

Two rabbits were inoculated with a solution from a pure culture of bacillus, both of which proved negative, neither manifesting any symptoms of the disease, although watched for eight weeks.

2. From blood obtained on opening the wound, which was done under strict aseptic precautions. The same process was gone through as previously described, and, after carrying to tenth generation, the same micro-organisms were isolated, with the exception of proteus vulgaris. From each pure culture tube-plates were again made, which showed no new growths. By macroscopical comparison, they showed the same appearance as the ones previously isolated. The staphylococcus pyogenes aureus and albus afterwards proved their presence by the formation of an abscess, which has been described. Two rabbits were inoculated with the blood, but in both the writer failed to produce tetanus.

From the pure cultures of the bacillus, two rabbits and two guinea-pigs were inoculated. After three days, one guinea-pig manifested tetanic symptoms; there was slight abduction and stretching of the hinder extremity nearest the seat of the inoculation, the limb becoming completely stiff; there was muscular inco-ordination, the animal suffering from clonic convulsions, which grew more frequent as the case progressed. The trismus was only slight, the animal taking food between the paroxysms. The animal could be thrown into violent spasm by a wave of air or by any sudden movement; these symptoms continued to increase, and on the third day the animal died. Blood and serum, and also portions of tissue from the point of inoculation were immediately inoculated into tubes, and another guinea-pig inoculated with a portion of the spinal cord (cervical region) of the animal dead of tetanus. From the tubes the bacillus of tetanus was isolated, but the experiment on the guinea-pig proved negative, the animal manifesting no symptoms of the disease. The other guinea-pig showed no symptoms of the disease. The guinea-pig which was not affected had been inoculated with pure hydrogen culture. According to Belfanti and Pescarolo, the virulence is diminished when cultivated in an atmosphere of hydrogen.

Of the rabbits, after eighteen days, one showed signs of muscular inco-ordination, first affecting the muscles nearest the point of inoculation; the convulsions were severe and frequent, marked trismus, and on third day of disease, and twenty-one days after inoculation, the animal died. From the cord and tissue the original bacillus of tetanus was isolated. On the twenty-second day after inoculation the other rabbit showed symptoms of the disease, and four days afterwards, twenty-six days after inoculation, the animal died. From this case the writer failed to isolate the bacillus of tetanus.

3. From the pus obtained from the abscess which formed on the patient's foot, by tube-plating and by removals, I obtained the micro-organisms of suppuration, and also the bacillus pyogenes fœtidus, and a bacillus which resembled the bacillus of tetanus; but the writer failed to produce tetanus in animals, either by inoculation of pus or of pure cultures obtained from the pus, although one guinea-pig showed symptoms of malignant œdema; in fact, it was well marked in the limb which was the seat of inoculation. It is a well-known fact that the bacillus isolated from pus obtained from a tetanic patient resembles the bacillus of malignant œdema, the same bacillus sometimes causing tetanus, and at others malignant œdema.

4. In the blood, after the patient had fully recovered from the disease, by careful tube-plating and removals, no bacillus of tetanus was found.

5. From a case of so-called idiopathic tetanus, which was in the wards of St. Mary's Hospital, the writer obtained a few drops of the patient's blood, but by careful cultivation no bacillus of tetanus was obtained.

6. From a case of traumatic tetanus, which died at the Episcopal Hospital. From the post-mortem the writer obtained some of the serum from the body; also portions of the cervical region of the spinal cord and medulla. Cultivations on agar-agar were made, from which the bacillus of tetanus was isolated. No inoculation of the pure culture obtained was made; but a small portion of the medulla, being emulsified in bouillon, was injected into a rabbit, which caused a series of rapid convulsions, and in one minute the rabbit was dead. Post-mortem revealed nothing, except that it died a pulmonary death; the true cause was most likely ptomaïne-poisoning or pulmonary thrombosis. All the experiments from the body of the animal proved negative. The experiment was repeated in two other rabbits with negative results, although these were inoculated with a portion of the cord two days after its removal from the body.

Experiments were also made with earth obtained from around the building where the patient was working when the foot was injured. From this the bacillus of tetanus was isolated, as well as numerous other micro-organisms,—viz., staphylococcus pyogenes aureus and albus, staphylococcus pyogenes citreus, bacillus pyogenes fœtidus, and proteus vulgaris. No inoculation of animals was made from the bacillus obtained from the earth, but macroscopically and microscopically it corresponded in every way with the bacillus of tetanus.

The period of incubation of the guinea-pigs was from three to five days; of the rabbits, much longer,—eighteen to twenty-two days,—with the one exception. In several of the rabbits, in from four to six days after the inoculation, they showed slight symptoms of the disease,—muscular inco-ordination, rigidity of limb nearest seat of inoculation; but in one to two days all these symptoms passed off, with no further manifestation. On post-mortem examination of the case previously mentioned no important pathological change was found; nothing, at least, but what would occur in other diseases, the cord and brain being slightly congested. In the post-mortem examination of the animals no important or constant pathological alteration was noticeable in any organ or in the cord. Microscopical examination of the blood and internal organs was almost entirely negative; at least, nothing definite was learned. Upon examining the patient's urine, both by chemical tests and microscopically, it proved to be normal, except for a large increase in the amount of urea, it being double the usual amount. The urine was examined several times while the patient was in the height of the disease, with almost the same result.

From the animals inoculated, and before any symptoms appeared, blood was taken from the veins to the amount of one-half drachm; but cultivations from this failed to demonstrate the presence of the bacillus of tetanus. In the guinea-pigs the blood was taken in from twenty-four hours to three days; in the rabbits, at varying intervals, from twenty-four hours to sixteen days after inoculation. From the animals suffering from tetanus, blood was taken in varying amount, never exceeding one-half drachm. By cultivation from this, the bacillus of tetanus was found in only two cases,—one rabbit and one guinea-pig; all the others proved negative. But at the point of inoculation the bacillus was found, except in two cases; while the experiments with the blood, as before related, was not so constant.

Experiments with the blood, before inoculation was made, as well as those from the blood of the animal in which no symptoms had developed, were negative. It has been asserted by Nicolaiev and Kitasato that the bacillus of tetanus is localized at the point of inoculation, and while Shakespear, Hocksinger, Deor, and others demonstrated the existence of the bacillus in the blood and internal organs; yet, out of twenty cases, in only three were they able to find the bacillus in the blood. From the writer's research in this case we must admit that it does exist in the blood as well as in the wound. Belfanti and Pescarolo failed in fifteen different cases to produce tetanus from the spinal cord of the animals that died of the disease. They also failed in some instances to find the bacillus at the point of inoculation. These same experimenters found that if the blood was taken immediately after death, the results were negative, but if they were to wait for six to twelve hours, they could also find the bacillus in the blood and internal organs. Their theory for this is that during life there

was enough of oxygen in the blood to prevent the growth of the bacillus, and only at the time of death, in death's agony, it enters the blood, and, as the body is anaërobic after death, it then exists in all parts,—in the cord, blood, internal organs, and other tissues. Belfanti endeavored to prove that the bacillus does enter the blood, by inoculating several rats at the tip of their tails, and after from one hour to twenty hours cauterizing the root of the tail, but the animals died of tetanus, which, it is said, was due to the action of the bacillus of tetanus, while others claim that it was due to the action of the ptomaïnes in the blood. Rosenbach found the bacillus of tetanus in the spinal cord of rabbits killed with tetanus. Nicolaiev, out of many observations, only once found the bacillus in the nerve (sciatic) near the point of inoculation, and only twice in the spinal cord.

As to the resistance of the spores, it was found that old cultures—three to four months old—retained their virulence, and from them new cultures could easily be obtained. Kitasato has also found this to be true where the spores were dried on silk. The bacillus has been obtained from the decomposed body of a person who died of tetanus even after a lapse of more than a year.

The bacillus of tetanus resists the action of other micro-organisms; even in tube-cultivation, where the growth is contaminated, the bacillus loses none of its virulency. Souchez-Toled showed that in blood kept in aseptic tubes the bacillus was found, and that it retained all its virulency. The writer was able to confirm this by the blood taken from the wound, from which, after five months, the bacillus was isolated. That the bacillus is present in the cadaver and in putrefying bodies was proven by the same experimenter and confirmed by the writer.

That, in order to induce tetanus, you must have an abrasion, has been definitely settled. Lorrani, Belfanti, and others found that the bacillus and spores may be drawn into the respiratory passages by inhalation, and even injected into the bronchial tubes, without producing tetanus. The pure cultures have been fed to animals without any result whatever; yet Betoli cites the case where slaves fed on the bull died of tetanus, and yet three of their number suffered from the disease, and two died.

Thermal Tests.—The great resistance which the bacillus of tetanus has to heat has been well established. The writer exposed stab-cultures to a temperature of 200° F. for five minutes, and from this removals were made; out of ten tubes inoculated, nine showed growth in thirty-six hours. Again, a tube was exposed to 212° F. for five minutes, and removals made; out of ten, eight showed growth, and when exposed to 212° F. for ten minutes, out of ten removals, five showed marked growth. These experiments were verified by using cultures of different ages,—from eight days to three months. Those containing few spores were destroyed at 180° F. by exposure for twenty minutes, but those containing a larger number of spores were more resisting.

It was found that, in order to destroy the bacillus and its spores, a continuous exposure to a temperature of 212° F. for not less than thirty minutes was necessary. This only confirms the statements of Belfanti and Pescarolo, who found that an exposure of one hour to a temperature of 80° C. did not destroy the bacillus or spores. Kitasato exposed a pure culture to a temperature of 90° C. for one hour, and yet was able to make cultures from the tube; but, by exposing to a temperature of 100° C. from ten to twenty minutes, he claimed to have destroyed both bacillus and spores. Kitasato used the following method to obtain a pure culture of the bacillus. He exposed a mixed culture to a temperature of 180° F., at which temperature the other micro-organisms were destroyed; but the bacillus of tetanus being more resisting to heat, pure cultures were obtained. While this method is suitable for obtaining pure cultures of the bacillus of tetanus, it is entirely useless for obtaining any other organism which might be found with it, and is thus robbed of its scientific value.

Effects of Drugs.—Ten tubes of the pure culture of the bacillus on agar-agar were exposed to a solution of corrosive sublimate, 1 to 1000, for five, ten, fifteen, and twenty minutes, and three removals made from each tube, at each exposure, and without exception, in from twenty-four to thirty-six hours, every cultivation showed marked growth. Five tubes were then exposed to a solution of the same strength, for intervals ranging from one hour up to ten, and from these three removals were made from each tube at each exposure, and it was found that when exposed for ten hours or over no growth could be obtained. It was found that the spores even resisted its action longer. The experiments were repeated, bouillon being used. Seven tubes, each containing twenty-five cubic centimetres of the culture medium, were then inoculated

with the bacillus of tetanus. After forty-eight hours the tubes showed marked growth; each tube was subjected to solutions of corrosive sublimate, the first tube being exposed to a solution of 1 to 1000; the second, 1 to 2000; and so on up to 1 to 7000. After three hours, three removals were made from each tube. From the tube which was exposed to 1 to 1000 solution, no growths were obtained, and from the three removals from the tube exposed to 1 to 2000, two showed no growths; the other removals all showed marked growths. These experiments showed the effect to be the same in liquid or solid media, and these results agree with those of Belfanti and Pescarolo.

2. The effect of carbolic acid was next tried; five tubes of the pure culture of the bacillus were exposed to varying solutions of carbolic acid, one, two, three, four, and five per cent. strength. After three hours, three removals were made from each tube, and after from twenty-four to forty-eight hours, all developed growths. After exposure for six hours, three removals were again made from each tube, and those exposed to the weaker solutions, one to three per cent.; all developed growths, but from those which were exposed to the four and five per cent. no growths were obtained. The experiments were repeated on bouillon with similar results, and the acid seemed to affect the bacilli and spores alike.

3. The hydrochlorate of cocaine was then used. Four different tubes were exposed to different strengths of a solution of the drug,—one, two, three, and four per cent.; after five minutes, three removals were made from each tube. After thirty-six hours, two tubes, which had been exposed to the one per cent. solution, showed slight growth, and one tube from the two per cent. solution. From the three and four per cent. solutions no growths were obtained. Two tubes were then exposed to a one and two per cent. solution for ten minutes; from each three removals were made, from which no growths developed. Five tubes were then inoculated from a culture, which had not been exposed to the action of the drug. These tubes were immediately subjected to a one per cent. solution of the drug. In twenty minutes the solution was removed, but the tubes failed to develop any growth; confirmatory experiments were made on bouillon.

4. The peroxide of hydrogen was next used. Ten tubes were exposed to the drug for twenty-four hours; three removals were made from each tube, all of which developed growths. Ten tubes were then exposed to the drug for forty-eight hours, and three removals made from each, and, without exception, all developed growths. The only effect noticeable was, that it liquefied the growth almost immediately on contact, a gas being evolved. These experiments were repeated on bouillon with the same results.

Five tubes were exposed to the fumes of bromine for twenty seconds; three removals were then made from each tube. Out of all the removals, four developed growths. The tubes were then exposed to the fumes for forty seconds, and three removals were made from each tube, all of which failed to develop any growths.

SUMMARY.

Although these experiments are largely confirmatory, at least, in many points, of what has been done by others, yet some important observations have been added; and, from the research made, it has been proven that Belfanti and Pescarolo were correct in their statement that the bacillus of tetanus was not an obligate anaërobe.

While the bacillus does not proliferate more rapidly in an atmosphere of pure hydrogen, yet it lessens its virulency when deprived of oxygen, and from pure hydrogen cultures inoculation experiments are almost always negative. In this the writer confirms the observations made by Widal, Chantenesse, Tizoni, Babes, Pescarolo, and Belfanti.

From the laboratory experiments, it was found that from stab cultures the growth would extend out over the top of the medium in from five to ten days after inoculation. By removal from this, as aërobic growths, the development was uninterrupted; but if the removals were made from portions of the growths beneath the surface, the removal showed no growth until after the sixth to as late as the fourteenth day; yet the same bacillus could be cultivated, either aërobic or anaërobic. It is the belief of the writer that no micro-organism is purely anaërobic,—*i.e.*, acting as such in the body. One can scarcely conceive where, in the human economy, such an organism could find a suitable nidus for its existence and proliferation. This view is further substantiated by many continental observers. The bacillus grows best at a temperature of 98° F., but will grow rapidly at 51° to 71° F.

Of the eleven animals inoculated, five died of the disease. From these the writer failed to produce tetanus in other animals; in one case he failed to isolate the bacillus of

tetanus from the dead animal. From the blood of the animals, while suffering from the disease, the bacillus was found in only two cases,—from one rabbit and from one guinea-pig; also from the traumatic case reported. From the point of inoculation, the bacillus was found except in two cases. Experiments from point of inoculation and from the blood after inoculation, and before any symptom of the disease,—*i.e.*, during the period of incubation,—gave negative results. Neither could the bacillus be demonstrated in the blood of the animals inoculated but not taking the disease at all.

That the bacillus is polymorphous is clearly proven by macroscopic appearance of growths at different ages, and by microscopic appearance of stained cover-glass films. Its marked resistance to the action of heat is clearly proven, requiring a continuous temperature of 212° F. for not less than thirty minutes to destroy it. Its resistance to the action of the corrosive sublimate and carbolic acid is definitely established, the experiments with these drugs being confirmed by many experimenters, among the most noted of whom are Belfanti and Pescarolo.

Peroxide of hydrogen showed no marked effect on the bacillus, except it seemed to retard its growth; but, without exception, the tubes on which the experiments were conducted developed growths. As to the use of the hydrochlorate of cocaine, its action was almost one of a specific, as all the cultures subjected to the drug for five to ten minutes failed to develop any growth.

Growths exposed to the fumes of bromine for twenty seconds, with few exceptions, showed no growths, and when exposed for forty seconds no growths were obtained.

It would be necessary, in order to arrive at any definite conclusion as to the effect of these drugs, to administer the drug to the animal suffering from the disease, and note its effect. As yet this has not been done, except that bromine was used locally in mopping out the wound in the case reported.

(To be continued.)

THE TREATMENT OF GONORRHŒA.

By Howard Wells, M.D.*

THE morals of the sailors are such that every naval surgeon on active duty has a fairly rich experience in the treatment of gonorrhœa.

In the early stages of acute gonorrhœa of the anterior urethra, I have had satisfactory results from the following method of treatment: The patient is directed to close the meatus with his fingers, and then to try to pass water. As soon as the urethra is thoroughly distended, the fingers are removed, and the rush of urine thoroughly clears the canal. I then inject a solution of bichloride of mercury, 1 to 1000, or 1 to 2000, having it retained for a few minutes. The amount of pain caused determines the strength of solution to be used. This is repeated daily, or on alternate days, for a week. After the injection, the smarting should not continue more than an hour.

At night I use pure hot water, or medicate it with laudanum, two fluidrachms, or lead acetate, four grains to the ounce of water. If there be chordee, a very rare thing under this treatment, I direct the patient, before retiring, to immerse the penis in hot water for twenty minutes, and then administer a full dose of bromide and chloral, thirty grains of each. At the end of the week the bichloride is discontinued, and the medicated hot water used.

Should the case continue over a month, tender spots are searched for, the urethra is thoroughly dilated, and iodoform is applied to the surface, on alternate days.

If the posterior urethra be involved, ordinary injections seem useless. In these cases, after clearing the urethra, I pass a catheter behind the triangular ligament, and use weak solutions of bichloride, 1 to 4000 or 1 to 5000. I prefer to charge a soft catheter with iodoform and vaseline (ten grains to one ounce), pass the eye of the instrument behind the ligament, and then force out the iodoform by means of a piston. Sometimes zinc sulphate is substituted for the iodoform.

In all cases of gonorrhœa I carefully regulate the bowels, and direct the patient to drink water freely. His diet is restricted, especially as to meat, and he is obliged to spend much time in bed.

Internal medication has generally disappointed me, so that I rarely depend on it. I have never seen orchitis or cystitis follow these injections of bichloride, though such cases are reported.

The average duration of treatment is from four to six weeks. At the end of this time the patients are definitely cured. Of this I can be assured in many instances, since these patients remain under observation, when on a cruise, for months. Of course some cases

* Surgeon United States navy.

become chronic, but this is exceptional. The duration of treatment seems shorter, and the cure seems more permanent than is the case with patients treated expectantly and by internal medication.

CLINICAL NOTES ON SODIO-SALICYLATE OF THEOBROMINE, OR DIURETIN.

By H. A. Hare, M.D.*

THE substance which has received the name diuretin is a preparation of the active principle of ordinary cacao, or, in other words, theobromine, a substance closely allied to caffeine and xanthine. Owing to the insolubility of theobromine in the juices of the stomach, it is necessary to give it in combination with sodium salicylate, and when diuretin is given, only about forty per cent. of theobromine is ingested.

It will be remembered that theobromine is supposed to act as a powerful diuretic in nearly all forms of dropsy, and to be successful when all the older remedies have been tried, with failure as a result. Further than this, it has been urged that, as it has practically no influence over the circulatory system, it is superior to caffeine, which, while it is a powerful diuretic, is also an active cardiac and cerebral stimulant.

Diuretin undergoes decomposition if exposed for any length of time to the air and moisture, and, owing to its large dose, is best given in small amounts every few hours rather than in one or two large doses.

The results obtained by Keyes and Babcock in this country, by Gram and Hoffmann in Germany, and by Koritschoner in Vienna, from the use of diuretin, seemed so unusual in many respects that I was tempted to try it in the wards of the Jefferson College Hospital. The writers quoted above report that the administration of full doses of diuretin causes the most extraordinary increase in the amount of urine secreted in those who were suffering from renal, cardiac, or pulmonary disease, particularly if dropsy is present. Unfortunately, my results have been by no means so favorable, and I put the cases on record because negative evidence is often as valuable as that which is positive, and because I may be considered to have given the drug a fair trial in view of the unfavorable results invariably attained.

* Professor of Therapeutics in the Jefferson Medical College.

A. E., aged 17, a Russian girl, was admitted to the Women's Medical Ward of the Jefferson College Hospital, suffering from valvular disease of the heart (a double mitral murmur). There was no dropsy whatever, but nevertheless the patient was passing only twelve to sixteen ounces of albuminous urine in twenty-four hours. The measurement of the urine having been made very carefully for a number of days, and found to be almost unvarying in amount, Knoll's diuretin was ordered at first in the dose of sixty grains a day (15 grains every six hours) in capsules, and, as this had no effect whatever, the dose was increased on the second day to one hundred and twenty grains a day (15 grains every three hours). Even with this dose no effect was noticed, although every care was taken in the measurement of the urine. On the fourth day after the diuretin was first used, as no effect had been obtained, the diuretin was stopped and 2 grains of citrate of caffeine administered three times a day, without increasing the urinary flow, although the use of the caffeine was persisted in for five days. The diuretin was now once more administered in the dose of one hundred and twenty grains a day, without effect after three days had elapsed, and Merck's sodio-salicylate of theobromine was then ordered for a number of days with no other result. Strophanthus also failed, in the dose of 5 drops of the tincture three times a day, to have any effect whatever upon urinary secretion.

Date.		Ounces.
Nov. 14.	Amount of urine passed in 24 hours..	16
Nov. 15.	Amount of urine passed in 24 hours..	16½
Nov. 16.	Diuretin, 60 grains a day. Amount of urine passed in 24 hours.....	9
Nov. 17.	Increased diuretin to 120 grains a day	13½
Nov. 18.	Amount passed in 24 hours.....	15
Nov. 19.	Amount passed in 24 hours.....	10
Nov. 20.	Caffeine, 2 grains three times a day. Amount passed in 24 hours	11
Nov. 21.	Amount passed in 24 hours.....	11
Nov. 22.	Amount passed in 24 hours.....	13
Nov. 23.	Amount passed in 24 hours.....	11
Nov. 24.	Amount passed in 24 hours.....	11½
Nov. 25.	Amount passed in 24 hours. Caffeine stopped.....	21
Nov. 26.	Sodio-salicylate of theobromine, 120 grains a day. Amount in 24 hours	15
Nov. 27.	Amount passed in 24 hours.....	19
Nov. 28.	Amount passed in 24 hours.....	15
Nov. 29.	Amount passed in 24 hours.....	15
Nov. 30.	Amount passed in 24 hours..... Strophanthus tincture, 2 drops three times a day.	10
Dec. 1.	Amount of urine passed in 24 hours..	22
Dec. 2.	Amount of urine passed in 24 hours..	15

Date.		Ounces.
Dec. 3.	Amount of urine passed in 24 hours..	16
Dec. 4.	Amount of urine passed in 24 hours..	13
Dec. 5.	Amount of urine passed in 24 hours..	14½
Dec. 6.	Amount of urine passed in 24 hours..	13½

The fact that the ordinary diuretics failed to increase the flow of urine indicates that the renal condition was either very atonic, or else that the patient was one of those individuals who normally pass very small amounts of urine.

The second case was that of J. McM., aged 28 years, a married woman, the mother of one child of 5 months. She had had, two years before, a severe attack of inflammatory rheumatism, which left her with a very marked lesion of the mitral valve (mitral regurgitation). There was a considerable amount of cyanosis at times, with dyspnœa, and a dropsical condition of the limbs and face was constantly present. An annoying cough also made her very uncomfortable, and was largely due to the cardiac condition and the pulmonary engorgement dependent upon it. Her condition was so pressing that it was found necessary to administer at first 5 drops and afterwards 10 drops of tincture of digitalis night and morning, and it is worthy of remark that in this case alone out of the five was there any increase in the urinary flow. Justly or unjustly, this was attributed by me to the digitalis rather than the diuretin, chiefly because a previous treatment by calomel, squill, and digitalis had been equally effective earlier in her illness, and because the larger dose of digitalis greatly increased the urine. The following table shows the amount of urine passed before and after the drugs were used. It should be stated also that oxygen inhalations were given twice a day during this treatment.

Date.		Ounces.
Dec. 7.	Ordered 1 drop of tincture of cantharides three times a day and 5 drops of digitalis night and morning. Amount of urine passed in 24 hours	15
Dec. 8.	Amount of urine passed in 24 hours...	22
Dec. 9.	Stopped cantharides and ordered 120 grains of diuretin a day. Amount of urine passed in 24 hours.....	20
Dec. 10.	Amount of urine passed in 24 hours...	40
Dec. 11.	Amount of urine passed in 24 hours...	38
Dec. 12.	Amount of urine passed in 24 hours...	31½
Dec. 13.	Amount of urine passed in 24 hours...	28½
Dec. 14.	Amount of urine passed in 24 hours...	37
Dec. 15.	Amount of urine passed in 24 hours...	35
Dec. 16.	Amount of urine passed in 24 hours...	52
Dec. 17.	Amount of urine passed in 24 hours... Dose of digitalis increased to 10 drops twice a day.	33½
Dec. 18.	Amount of urine passed in 24 hours...	44
Dec. 19.	Amount of urine passed in 24 hours...	58
Dec. 20.	Amount of urine passed in 24 hours...	44
Dec. 21.	Amount of urine passed in 24 hours...	58
Dec. 22.	Amount of urine passed in 24 hours... Stopped digitalis.	55½
Dec. 23.	Amount of urine passed in 24 hours...	42
Dec. 24.	Amount of urine passed in 24 hours...	34
Dec. 25.	Amount of urine passed in 24 hours...	43
Dec. 26.	Amount of urine passed in 24 hours...	44½
Dec. 27.	Amount of urine passed in 24 hours...	45
Dec. 28.	Amount of urine passed in 24 hours...	30
Dec. 29.	Amount of urine passed in 24 hours...	39
Dec. 30.	Amount of urine passed in 24 hours... Ordered digitalis, 10 drops.	38
Dec. 31.	Amount of urine passed in 24 hours...	40
Jan. 1.	Amount of urine passed in 24 hours...	57½

The third case was that of a man of 25, admitted to the hospital suffering from a general and complete anasarca, which increased his weight from the normal (one hundred and sixty-five pounds) to two hundred and four pounds.

The heart was normal, but the urine was loaded with albumen.

The following table shows the results obtained in his case:

Date.		Ounces.
Dec. 14.	Urine was measured by the patient, who reported that he passed in 24 hours He was ordered 120 grains of diuretin a day.	64
Dec. 15.	Amount passed in 24 hours.....	53
Dec. 16.	Amount passed in 24 hours.....	48
Dec. 17.	Amount passed in 24 hours.....	35
Dec. 18.	Amount passed in 24 hours.....	40
Dec. 19.	Amount passed in 24 hours.....	33

The fourth case was that of an old man of 60, who had a concentrated urine and suffered from an enlarged prostate. In the dose of one hundred and twenty grains a day the diuretin decreased his urine instead of increasing it, although the decrease was very slight. The great difficulty in measuring his urine, owing to his lack of vesical control, prevented a carefully-prepared table from being kept.

In order to determine whether any particular value lay in diuretin (Knoll) or in the sodio-salicylate of theobromine made by Merck, both preparations were employed alternately without any difference in result.

As an example of the fact that an investigation should never be considered complete without control experiments, it is interesting to note that a patient who was passing twenty ounces of urine a day was ordered diuretin, but owing to unavoidable delay failed to receive it at once. In the next twenty-four hours he passed sixty ounces of urine with-

out any drug being given, an increase which would have been assigned to the diuretin had it been administered.

Perhaps no better example of the price which can be put upon a name can be found than in the example before us. Diuretin (Knoll) costs two dollars and fifty cents an ounce, but sodio-salicylate of theobromine (Merck) costs fifty cents an ounce, or one-fifth as much. At the dose of 2 drachms a day the drug at the first price becomes an impossibility to many persons,—an advantage in a name to a patentee and a disadvantage to the long-suffering public,—while at the latter it is purchasable by a large number.

These notes are not made as a final report, but only to point out the fact that the drug sometimes fails to do all that has been claimed for it.

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*THE TEACHINGS OF EXPERIENCE AND OF RATIONAL THERAPEUTICS AS TO THE TREATMENT OF PNEUMONIA.**

By Boardman Reed, M.D., Atlantic City, N. J.

ACUTE lobar pneumonia, according to Juergensen, "ranks next to phthisis as one of the most dangerous enemies to human life."[1] The experience of Loomis leads him to believe that it "is the most fatal of all acute diseases" in old age, and he gives it as the opinion of many eminent authorities that nine-tenths of those who die over sixty-five years of age in hospitals die of pneumonia.[2] No excuse should be needed, therefore, for going somewhat elaborately into the subject of the treatment of this most justly dreaded disease.

The writer will not turn aside here, as was first intended, to answer the objections of those who hold that pneumonia is not especially affected in its course by any form of treatment, and that the statistics of the disease prove nothing; but will proceed at once *in medias res.* If any one who reads carefully the facts and figures, given later on, shall fail to be convinced that it makes a great difference in the result how pneumonia is treated, any amount of argument would be lost on him.

Assuming, therefore, what should be sufficiently axiomatic, that some treatments of pneumonia are better than others, let us try to determine what is the very best. This has long been a *quæstio vexata*, and, unfortunately, it has not always been discussed in a dispassionate and unprejudiced manner.

It may be as well to explain here that this paper has not been written to advocate any particular method of managing pneumonia. It is true that, when I began studying the statistics of the subject, it was with a predilection in favor of a line of treatment which had been exceptionally successful in my hands, insomuch that in a busy practice of fourteen years I had not lost any cases of acute lobar pneumonia, excluding, of course, those seen late in the attack in consultation with other physicians.

But these recent investigations have somewhat modified my views. Not to anticipate a verdict which should follow a full statement of the evidence, it may be mentioned at this time that the plan of treatment which seems to me to have accomplished the best results[3] does not include bleeding (unless very exceptionally), early blistering, active purgation, emetics, nor debilitating doses of tartar emetic. It does not have in it any place for antipyrin and its congeners; and it by no means accords with a surrender of all therapeutic measures and a sole reliance upon feeding, stimulating, and nursing in a malady which attacks so sharply the very citadels of life.

Following the inductive method, let us endeavor to ascertain, first, what experience teaches, and, then, whether the promising though scarcely yet established science of rational therapeutics be in accord therewith.

It is not worth while to go much farther back than 1818, when Laennec's discovery of auscultation first enabled physicians to accurately diagnosticate pneumonia from other acute diseases of the lungs. Venesection had come to be greatly abused in many parts of Europe. Eight to sixteen and sometimes thirty-two ounces of blood were taken at the onset, followed often by one or two additional bleedings within the first twenty-four hours and further repetitions daily during the whole course of the disease. Active purgatives and emetics were also freely employed as a means of derivation, and large blisters over the chest formed a part of the formidable armamentarium with which most physicians waged their vigorous warfare against pneumonia.

Laennec bled once only, at the beginning of the attack, and otherwise followed a milder plan, except that he adopted Rasori's method of giving large and repeated doses of tartar

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* An abstract of this paper was read before the Medical Society of the State of New York, at the annual meeting, February 2, 1892.

emetic, pushing the drug until a so-called tolerance was established. He was less bold in this respect, however, than Rasori, and usually contented himself with administering six to ten grains of the drug daily. Laennec himself affirms that he has no recollection of having seen a fatal result from acute pneumonia in any case where the tartar emetic had been taken long enough for its effects to be experienced.[3]

The figures afterwards given by him, however, including the cases brought into hospital moribund, show a mortality of 9.6 per cent. He estimates the mortality from pneumonia in his day among the profession generally to have been from one in eight at the least to one in six at most,—that is, 12.5 to 16.6 per cent. Laennec's own figures were evidently based on results obtained in hospital practice, and, as he refers to published mortality tables, it is probable that the death-rate from pneumonia with which he credits his fellow-practitioners of that day (1825) was made up chiefly from hospital reports. If so, it was, relatively speaking, a creditable one, considering that the average mortality in the hospitals of to-day under present methods is confessedly above 25 per cent. Skoda is said to have estimated the average mortality from pneumonia in 1841 at 12.5 per cent.

At variance with the statistics of most other hospitals of the world that have come under my observation are the records of the Edinburgh Infirmary quoted by Osler. They show a higher death-rate from pneumonia before 1856 than afterwards. The following are the figures given :[4]

Years.	No. of Cases.	No. of Deaths.	Per cent.
Before 1848	567	not stated	36.3
1848 to 1856	611	" "	21.2
After 1856	548	" "	12.7

The modes of treatment followed since the era of venesection not being stated, we are left in doubt whether other active or antiphlogistic forms of treatment, in whole or in part, or merely expectancy, achieved such favorable results. It is unlikely that it was the latter, since, after a prolonged trial in the Vienna hospital, expectancy, even aided by refrigerant drinks, was found to yield a mortality of 20 to 24 per cent.; and Wunderlich, who for awhile is said to have practised expectancy, thermometer in hand, had a death-rate of 23.5 per cent.[5]

It must be conceded that a strong case has been made out by those who contend that the mortality from pneumonia was less on the average under the heroic and often seriously depressing therapeutic measures, including venesection and low diet, which prevailed during the first half of the present century, than it has been under either pure expectancy or the methods of treatment that have been most in favor during the past thirty-five years, except in parts of Germany where, since about 1866, the death-rate from this disease has been greatly lessened by hydrotherapy.

Below will be found a summary of all the complete statistics that have come under my eye bearing on the death-rate from pneumonia during the period anterior to and including the year 1856, with the following exceptions, viz. :

1. Those collections embracing less than one hundred cases.

2. Statistics from the hospitals in the southern part of the United States, where a large proportion of the patients are of the colored race.

3. Collections known to include cases that were treated on the expectant plan.

Cases of Pneumonia treated before and during the Year 1856.

Reporter and reference.	Cases.	Deaths.	Per cent.
Acerbi, *Annot. di Med. Prac.*, Milano, 1819, p. 94	142	16	11.2
Bouillaud, *Dic. de Méd.*, Paris, 1835	173	21	12.1
British Army, La Roche, "Pneumonia," Philadelphia, 1854, p. 417	5,685	399	7.0
Chomel, "Pneumonie," Leipsic, 1841, S. 305	383	60	15.7
Hourman et Dechambre, *Arch. de Médecin*, 1836	109	76	70.0
Juergensen, "Records of Seraphim Lazareth," Stockholm, 1840–55	2,616	281	10.7
Kissel, *Canstatt's Jahrb.*, 1852	112	5	4.5
Kissel, "Pneumonie," Eilenberg, 1852, S. 288–291	301	19	6.3
McGregor, "Med. Notes on Crimean War"	4,027	287	7.0
Rasori, *Arch. Gén. de Méd.*, 1824	832	173	22.0
Sampson, *London Lancet*, New York, 1851, vol. ii. p. 36	909	209	23.0
Tommasini, "Delle Peripneumonie," Bologne, 1817	115	14	12.1
Townsend and Cooledge, "Records Mass. Gen. Hospital, 1826–56"	221	42	19.0
Wunderlich, *Arch. f. p. Heilk.*, Bd. iii., 1856	237	25	10.5
"U. S. Army Reports, 1840–54	1,416	127	8.9
	17,278	1754	10.2

The figures in the foregoing table, taken from army reports, aggregate as follows:

Total number of cases	11,128
Total number of deaths	813
Percentage	7.3

Deducting these from the totals in the table, we have left the following:

Number of cases exclusive of those from army reports	6150
Number of deaths	941
Percentage	15.3

These figures probably represent approximately the average mortality in civil hospitals during that part of the present century up to and inclusive of the year 1856.

For the majority of the above statistics I am indebted to a well-nigh exhaustive paper by Dr. E. F. Wells.[6] Some of his collections, which I have not included, may cover the period previous to 1856, though the references in his table do not indicate it. To avoid anything like an unfair selection of statistics my plan has been to include all that manifestly belong to the period under consideration with the exceptions above mentioned, and none concerning which there was doubt. I have not been able to verify all of the figures, but believe that they are substantially correct. Whatever imperfections they may have, they have at least not been selected to prove a theory. Numerous references in current medical literature to the mortality rates of certain hospitals have been ignored because the complete figures, including the number of cases and number of deaths, were not stated. Certain partial statistics covering a few selected years out of several decades have also been excluded for obvious reasons.

I have omitted from the table also the important figures quoted by Dr. Hartshorne,[7] as having been reported "by between forty and fifty physicians, of 11,627 cases in Great Britain and Ireland and on the continent of Europe." These are said to represent the results of different modes of treatment "within a few years prior to 1858," but this date excludes them from a table intended to cover cases treated up to and including 1856 only. Of these 11,627 cases of pneumonia, 2751 were bled, some of them receiving tartar emetic also, with a death-rate of 9 per cent.; 8424 cases were treated without bleeding (deducting 452 cases which received various exceptional modes of medication) with a mortality of 10 per cent.

Such a comparison, however, proves little for our purposes, unless we are informed exactly what line of treatment was pursued in those not bled; for they may have been subjected to other measures or medicines scarcely less heroic. A like comment may be made as to the same writer's citation of United States army records.[8]

Comparing 1416 cases of pneumonia, of which 127 died (8.9 per cent.), in the bloodletting era of 1840 to 1854, with 657 cases, of which 97 died (14.7 per cent.), in the years 1855 to 1859, would be more instructive if the figures were accompanied by information as to the treatment that was employed in the latter period.

The foregoing tabular summary shows 17,278 cases of pneumonia treated during an era in which venesection, active cathartics, emetics, and other heroic measures were almost universally used in combating the disease. Of these, 1754, or 10.2 per cent., proved fatal. The 2751 cases said to have been treated chiefly by bleeding in Europe a few years prior to 1858, presumably in private practice, with a death-rate of only 9 per cent., and the 1416 cases with a mortality of 8.9 per cent. in the United States army from 1840 to 1854, a time when pneumonia cases were nearly always bled, are confirmatory of the comparatively low average death-rate indicated by the figures in the table, and go to show that during the latter part of the period when vigorous antiphlogistic measures held sway in the management of pneumonia, the mortality was somewhat less even than Laennec estimated it for his *confrères*, which was 12.5 to 16.6 per cent., the rate in his own practice having been less than 10 per cent.[9]

In the foregoing table are included 2616 cases cited by Juergensen from the records of the Seraphim Lazareth, at Stockholm, covering the period from 1840 to 1855.[10] Wilson Fox's extracts from Huss's "Behandlung der Lungen Entzündung" indicate that Huss had studied the statistics of the Stockholm hospitals for the sixteen years, 1840 to 1855, with the result of showing that during the eight years, 1840 to 1847, when bleeding was indiscriminately practised, the mortality was 11.54 per cent., while during the succeeding eight years, when it was less employed (the actual treatment usually followed not stated), the mortality was 10.21 per cent.; that is, as Fox triumphantly sums up the matter, "the mortality of the former period exceeds that of the latter by 1.38 per cent."[11]

Experimental trials of the bleeding and non-bleeding methods by Grisolle, Dietl, Wunderlich, and some others are also quoted by Wilson Fox.[12] Most of these have not been tabulated by me because the statistics are incompletely given by Fox, and I have not access to the originals. Grisolle's experiment resulted favorably to venesection; Dietl's the other way. Wunderlich's evidence was in favor of bleeding.

He treated 76 cases without letting blood with a mortality of 17.1 per cent., and 47 with bleeding with a mortality of 6.38 per cent. But results in such small collections of cases prove nothing either way.

Among all the accessible statistics relative to the mortality of pneumonia under various methods of treatment, none are so extensive and few are so definite, reliable, and in every way satisfactory as those from the armies of the different civilized nations. The lessons to be deduced from them are also the most striking and significant. They will be considered later on in this paper; and we shall first analyze some of the hospital records.

The mortality statistics in pneumonia obtained from hospitals are rather unsatisfactory for various reasons. They are drawn mainly from the poorest part of the population, including a large proportion of patients debilitated by previous excesses or diseases, and, what is far more important, the patients are usually taken to the hospital late in the course of the attack, after the first forty-eight hours — that golden time for treatment in pnenmonia—have passed by. Then, the disturbance involved in transporting a person sick with so violent a disease often seriously aggravates the case. Another cause of the relatively high mortality in most American hospitals is the considerable proportion of the patients who are of the negro race,—a people in whom pneumonia is peculiarly fatal. Indeed, colored patients form so large a proportion of the inmates of hospitals in the southern part of the United States that it would be altogether unfair to make any use, for the purposes of comparison, of statistics from hospitals in that section.

The older tabulated reports seem to have included cases of both lobar and lobular pneumonia, and the same is true of nearly all the larger collections of cases from military sources. The later hospital statistics refer to cases of acute lobar pneumonia alone. This inclusion of both the two leading forms of the disease in the older reports may have raised slightly the mortality rate ascribed to the earlier periods, since, according to Juergensen, Pepper, and most other authorities, catarrhal or lobular pneumonia is more fatal than the lobar form. Accepting the average of the non-military collections in our table—15.3 per cent.—as approximating the true average mortality rate in civil hospitals during the first fifty-six years of this century, a period when venesection and other energetic methods generally prevailed, let us see what the death-rate from the same disease has been in hospitals recently.

As to the Pennsylvania Hospital, of Philadelphia, Hartshorne [13] and Osler [14] have each reported several detached periods of three years only, which, while they are not in accord, yet agree in showing an average death-rate during the decade ending in 1887 of over 30 per cent. Osler's report, for instance, gives the following figures:

1875–76–77	39.2 per cent.
1878–79–80	32.7 per cent.
1885–86–87	36.1 per cent.

In the New York Hospital the mortality in 252 cases of acute lobar pneumonia between 1877 and 1885 is reported by Dr. Doubleday as 48 per cent.; or, excluding those moribund on admission, 37.69 per cent.[15]

In the Massachusetts General Hospital, counting all cases of lobar pneumonia, the mortality from 1880 to 1889 was 28 per cent.[16]

Osler states the mortality from the same disease in the Montreal General Hospital to have been 23.7 per cent. in the decade ending 1883, and 20.3 per cent. in the years 1883 to 1887.[17] He does not mention what mode of therapeusis was pursued. No statement as to the treatment in the Pennsylvania Hospital accompanied the figures above quoted, but it is known to have been largely a sustaining one.

Loomis states that of 255 cases treated in his wards in Bellevue Hospital, New York, during a period of four years, 87 died, a percentage of 34.1.[18] The treatment recommended by him in his article on croupous pneumonia in Pepper's "System of Medicine" (the same in the main, it may be inferred, carried out in his hospital wards) excludes venesection, veratrum viride, aconite, tartar emetic, calomel, expectorants, and the various forms of hydrotherapy, except "cold sponging of the limbs and face if it is grateful to the patient." The only active measure advised by him in the first stage is the use of quinine in full antipyretic doses. Otherwise his plan of treatment may be described as expectant, sustaining, and stimulating.

The treatment of this disease in the New York Hospital from 1877 to 1885 has been explicitly given. Quinine in large doses was used extensively, and had "in some cases a markedly depressant action on the heart." Calomel in full doses when possible before consolidation had taken place; for the delirium, bromides, chloral, and morphine; for the pain, opium; for dyspnœa, small doses of atropine, quebracho, dry cups, and in severe cases inhalations of oxygen; for stimulants, carbonate of ammonia, digitalis, and alcohol, patients being put on stimulant treatment as soon as admitted and the alcohol "rapidly increased

until the breath became alcoholic;" in twelve of the cases, antipyrin was used for high temperature.[19]

These therapeutic measures are noteworthy on account of the high average death-rate—48 per cent.—that obtained under them.

The statistics of the Massachusetts General Hospital are worthy of especial notice. Townsend and Cooledge, in an elaborate paper published in 1889,[20] carefully studied the records of all cases of acute lobar pneumonia treated in that hospital from January, 1882, to May, 1889, amounting to 1000. Their paper contains internal evidences that its *raison d'être* was in part at least a desire to confute Hartshorne's forcible argument of the previous year in favor of a return to bleeding for pneumonia. They made a valuable contribution to our knowledge of the mortality of that disease under various conditions, even though they did not succeed in demonstrating the superiority of expectancy over other modes of treatment.

Their figures show that the death-rate from acute lobar pneumonia in that hospital was in the several decades as follows:

Years.	No. of Cases.	No. of Deaths.	Per cent.
1822–29	49	5	10.2
1830–39	99	18	18.1
1840–49	38	8	21.0
1850–59	72	19	26.4
1860–69	147	39	26.2
1870–79	169	41	24.2
1880–89	425	117	27.5

These figures were not satisfactory. The authors then ascertained that the proportion of patients over fifty years of age was greater in the later than in the earlier decades, and omitted from their calculations the number of such cases that proved fatal. This, I think, it was proper to do, but after making these deductions the heroic decades still gave the better showing as to results. The authors next found that the records showed a larger relative proportion of complicated cases, as well as of patients said to have been delicate and intemperate in the latter decades. No allowance was made for the fact stated by themselves in another part of their article, that the records of cases in the earlier years were imperfect, involving "the absence oftentimes of important symptoms and phenomena which should have been noted," and thus rendering it most probable that any apparent disproportion in the relative ratios of complicated, delicate, and intemperate cases to the whole number of cases was due to omissions in the records. It is most unlikely that the classes of patients who are treated for pneumonia in hospitals have been on the average more delicate or liable to complications (except it be for lack of energetic treatment in the first stage) since 1860 than before; and it is quite certain that intemperance has been less rife in the last thirty years than previously. However, the writers of the paper under consideration counted out all the fatal cases in the classes referred to, and in this manner so far lowered and straightened the mortality line in their chart as to make it begin a little below the ten per cent. mark in the first decade, and end only a little above the same in the last. That is, they seemed to demonstrate that the "expectant and sustaining treatment," which they affirm has prevailed in the Massachusetts General Hospital since 1860, has rescued nearly as many robust young pneumonic patients from death as were saved under the heroic *régime*,—the gory horrors of which, including the starvation diet, the copious bleedings, purgings, vomitings, salivations, and other depressing measures, they vividly described.

But what of the old and feeble under the two methods? The authors thought of this, and themselves asked the question, "Did the aged and delicate, the complicated and the intemperate, have as good a chance for recovery under the old heroic treatment as with the later sustaining one? For answer they show that before the year 1860 there were 62 cases among these impaired lives, with 25 deaths, and since 1860, 397 cases, with 165 deaths, adding this brief comment:

"Reduced to percentage, we find the mortality to be almost exactly the same,—namely, 40 per cent. in the first period and 41 per cent. in the second period."

Almost the same, yet with the 1 per cent. of difference on the wrong side,—against expectancy. In other words, the aged and debilitated fared better under the heroic methods than under the so-called "sustaining" one.

Townsend and Cooledge drew from all this the following extraordinary conclusion:

"Treatment which was heroic before 1850, transitional between 1850 and 1860, and expectant and sustaining since 1860, has not therefore influenced the mortality rate."

Would it not have been more logical if they had merely inferred that "No treatment is almost as good as an excessively harsh and depressing one," leaving open the question whether there might not be some practicable method which should avoid both objectionable extremes and save a much larger proportion of patients?

As to the mortality from pneumonia in pri-

vate practice, there are few reliable statistics obtainable that cover any considerable number of cases. The result of the collective investigation in Great Britain and elsewhere about the year 1858, reported by Hartshorne, show a mortality under venesection of 9 per cent.

Pepper's collective investigation in 1890 showed 2471 cases of primary pneumonia, with a mortality of 324,—13.11 per cent.[21]

He sent inquiries to nearly three thousand physicians living in Philadelphia, and received replies from two hundred and seventy-two. The difficulty with all such investigations is that the physicians who have had the most successful results are apt to report fully, and those who have been less fortunate are very apt not to make reports. In consequence, the average mortality rate shown is often much less than the true one.

It is altogether different with the following military statistics. They are not only drawn from exceedingly large collections of cases, but include both good and bad results, so that averages made from them afford a basis for valuable deductions.

Furthermore, the soldiers in modern armies are nearly always young men, between the ages of 18 and 45, and men whose physical soundness has been attested by a careful medical examination. They are under very similar conditions as to exercise and regularity of hours for eating and sleeping. In case of sickness, it is usual for them to be seen early by a competent medical man. The average death-rate from pneumonia among such patients, when many thousands of cases are included covering periods of five to ten years, should, therefore, be rather constant, unless changed by important differences in the treatment.

In an aggregate of 11,128 cases of pneumonia in the United States and British armies, up to and inclusive of the year 1856, there were 813 deaths, a mortality of only 7.3 per cent.;[22] while during the war of the American Rebellion, 1861 to 1865, there were (exclusive of cases in the colored troops, among whom the mortality was much higher) 61,202 cases, with 14,738 deaths, a rate of 24 per cent.;[23] and the Confederate hospital reports give the rate of mortality on their side for twenty-five months of the same period as 33⅓ per cent.

Coming down now to a still later period (1868 to 1878), excluding the years of war (1870 and 1871), we find reported from the Prussian army 42,467 cases of pneumonia with 1524 deaths, a mortality of only 3.6 per cent.[24]

These very large collections of cases, all from among soldiers, and under almost identical conditions, except as to treatment (and the fact that the Prussian statistics covered years of peace only), should certainly teach us something. The 11,128 cases were treated in the heroic era, when venesection and other energetic but often debilitating measures were in vogue. The mortality (7.3 per cent.) was comparatively low, yet, doubtless, would have been lower if the treatment had been less severe.

The next period, during the war of the Rebellion in the United States, was a transitional one in the treatment of pneumonia, which is to say that the old sheet-anchors had been abandoned and nothing satisfactory had been found to take their place. Expectant measures predominated, and the result was in the Northern army a death-rate of 24 per cent., three times as high as prevailed during the period of 1840 to 1854, which included the Mexican War; while in the Southern army the mortality was one-third higher still.

In the third period the mortality was reduced to the astonishingly low rate of 3.6 per cent. by combining the use of cold water locally, with a judicious administration of veratrum viride, antimony, etc., in the first stage, so as to throttle and hold under the inflammatory process from the start.

To recapitulate: The death-rate among soldiers in the heroic era was less than one-third what it was in the same class during a period when expectant and supporting measures prevailed; yet was twice as great as it was under the treatment by wet-packs and the cardiac sedatives in the Prussian army from 1868 to 1878.

[1] Ziemssen's "Cyclopædia," article on "Croupous Pneumonia." [2] Pepper's "System of Medicine," vol. iii. p. 343. [3] "Treatise on Diseases of the Chest," New York, 1830, pp. 255–258. [4] "The Mortality of Pneumonia," by Wm. Osler, M.D., *University Medical Magazine*, November, 1888, p. 78. [5] "Diseases of the Lungs," by Dr. Germain-Sée, New York, 1885, p. 185. [6] "Pneumonic Fever: Its Mortality," etc., by Dr. E. F. Wells, *Journ. Am. Med. Ass.*, January 9, 1892. [7] "Notes on Past and Present Mortality and Treatment of Pneumonia," by Henry Hartshorne, M.D., *Phila. Med. News*, April 7, 1888, p. 374. [8] Op. cit. [9] Op. cit. [10] Op. cit. [11] Reynold's "System of Medicine," Philadelphia, 1880, vol. ii. p. 240. [12] Op. cit. [13] Op. cit. [14] Op. cit. [15] *N. Y. Med. Rec.*, March 28, 1885, p. 343. [16] Townsend and Cooledge, *Trans. Am. Clin. Ass.*, 1889, p. 27. [17] Op. cit. [18] Pepper's "Syst. of Med.," vol. iii. pp. 342, 343. [19] Doubleday, op. cit. [20] Op. cit. [21] *Phila. Med. News*, July 5, 1890. [22] See table on preceding page. [23] "Med. and Surg. Hist. War of Rebellion," Part III., Med. vol. [24] "Inaug. Dissert.," by Dr. Carl Hermann, presented to University of Würtzburg, in 1880.

(To be concluded.)

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H. A. HARE, M.D.,
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AND
EDWARD MARTIN, M.D.,
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Leading Articles.

CAUTION!

INFORMATION is reaching us from various sources to the effect that one Charles A. Hollie, representing himself as State agent of the "St. Louis Medical and Law Association," has collected money from various physicians in Missouri and in Arkansas for our publications.

Also one D. J. Bigger, alleging to represent the "Law and Medical Exchange," 91 and 93 Fifth Avenue, Chicago, has, in like manner, been taking subscriptions for our publications, and collecting money without authority.

We know nothing of either of these individuals further than stated, and investigation gives no evidence of the existence of the former Association, and also that no Medical and Law Exchange is located in Chicago at the numbers named.

We would especially caution physicians to require all solicitors who purport to represent the THERAPEUTIC GAZETTE, or any other of our publications, to produce evidence of their authority, for our agents, one and all, are qualified by credentials that cannot be misunderstood. Further, we invite correspondence by telegraph, at our expense when there is any question or doubt as to the authority of the individual.

EUCALYPTOL AND EUCALYPTUS OIL.

THE constant employment of the oil of eucalyptus and of the camphoraceous product *eucalyptol* by physicians in the treatment of diseases of the air-passages has rendered the manufacture of these derivatives a large industry, which is chiefly carried on in Australia. The rapid increase in the popularity of these products has attracted to them not only the responsible manufacturing chemist, but, in addition, several individuals who are not willing to accept fair profit for a good drug, but are anxious to foist upon the professions of medicine and pharmacy an ordinary oil of eucalyptus, under the name of the more expensive camphoraceous body eucalyptol, which is a derivative of the oil, and upon which the activity of the oil chiefly depends. Not content with this statement, Sander & Son have had the impudence to send broadcast through the United States and Canada a postal-card, stating that they are "the only manufacturers of eucalyptol on the globe," although the label on their bottles gives in small letters in brackets, under the word eucalyptol, "ol. euc. e foliis," or, in other words, that their "eucalyptol" is the oil of eucalyptus leaves.

Worse than this, however, is the attempt of these wolves in sheep's clothing to fool the druggist and the doctor, and thus cause these innocent persons to be their agents in extorting from the sick high prices for something which they do not receive. In a circular which Sander & Son have sent over the whole American continent, they quote Pro-

fessor Mosler, of Griefswald, and Professor Schulz, of Bonn, as having indorsed, to the exclusion of all other products, the oil of eucalyptus of Sander & Son, whereas both these gentlemen state that such a use of their name is absolutely unauthorized, and an examination of Mosler's article in the *Berliner Klinische Wochenschrift* fails to show the name of any such firm. Mosler's paper says, "The oleum eucalypti used by me was procured by apothecary Kuntzmann, of Messrs. Hoelzle & Chellius, of Frankfort-on-the-Main," yet in Sander & Son's advertisement it is stated that Mosler says in his article, "Among the preparations purporting to be ol. euc. e foliis, Sander & Son's manufacture is the sole product deserving of the name." Again, elsewhere Sander & Son quote Mosler as saying, "All cases of diphtheria treated by me with ol. euc. e foliis (Sander & Son) have, without exception, proved successful." (!) The real sentence reading, "This case recovered under inhalations of *salt and water*."

Sander & Son once more depend upon the credulity of the public when they assert that they are the "sole existing distillers of eucalyptus who are using exclusively *leaves* in the manufacture of their product," and that American and Australian firms only supply oil distilled from the wood. That this is an attempt at fraudulent pushing of their product is shown by the fact that the leaves are the only part of the tree which yield an oil, the wood and bark yielding none at all.

In order to baffle investigation, this delightfully truthful firm have as their agent a certain person signing himself Sander, M.D., at Dillon, Iowa, a place of fifty souls, from which no less than one hundred and six thousand pamphlets advertising Sander & Son's "eucalyptol" were mailed.

Finally, as if seeking "beneath the lowest depths another deep" in their scheme, Sander & Son publish the names of eighty-four medical men who are said to support their product as eucalyptol. In reply to letter of inquiry addressed to these persons, every one who has answered at all has denied ever having given testimony concerning such a product as "Sander's eucalyptol," but state that blanks have been distributed asking for reports as to "eucalyptol," without any indication as to whose eucalyptol was in question. Of the eighty-four physicians named, four do not exist, nineteen are quacks, devoid of qualifications, and thirty-three cannot be found, and do not appear in "Polk's Directory." In five instances no such address exists as that given.

After the exposure of such duplicity, the readers of the THERAPEUTIC GAZETTE would do well to write on all prescriptions calling for eucalyptol the words "NOT Sander & Son's."

THE ABORTIVE TREATMENT OF SYPHILIS.

BY the abortive treatment of syphilis is meant excision of the primary sore, with the idea of preventing subsequent manifestations of the disease. The original idea of such treatment was based upon the assumption that the virus of syphilis remains strictly localized for some time, its extension being prevented by the cellular induration characteristic of chancre, and that the generalization of the disease is due to the breaking down of this induration, thereby exposing the system at large to the poison.

Hüter, Auspitz, and Unna, with this theory as the basis of their operative procedure, excised chancres, and claim some successes.

Taylor (Hare's "System of Therapeutics") states that there have been reported about four hundred and sixty cases in which excision has been performed, and about one hundred and ten successes have been claimed, but that he personally does not believe a single case of syphilis was ever aborted or annihilated by early radical procedures of any kind. Many of these cases he believes were soft chancre, others were cases of relapsing chancre *in situ*, such as are sometimes seen in late syphilis and are not followed by other lesions; while others were probably cases of irritated herpes.

Fournier (*Gaz. des Hôpitaux*, September 24, 1891) states that before syphilis can be regarded as aborted by excision of what seems to be the primary sore, the following requirements are essential: 1, the woman from whom the man operated upon contracted his disease must be proven to be syphilitic; 2, an incubation of from two to four weeks must be clearly demonstrated; 3, the case must be completely reported, and the excised lesion must be proven to be a syphilitic chancre; it must also be proven that the patient has not been previously syphilitic. Furthermore, the patient must be kept under prolonged observation, without the administration of mercury or iodide of potassium.

Modern research has shown quite certainly that, at least in many cases, the pathological

features of syphilitic infection are, at the time of the appearance of the chancre, to be noted along the blood-vessels of the penis far from the seat of primary lesion; hence that at this stage entire removal of the virus by means of the knife is impossible.

Kōbner (*Berlin. klin. Wochenschr.*, December 29, 1890) states that he has attempted abortive treatment in hundreds of cases, and that, as a result in a few instances in which he has been able to follow the patients for a period varying between five months and a year and a half, no symptoms of syphilis appeared. Some of these cases fulfilled most of Fournier's requirements. This opinion is the reverse of what was formerly held by this distinguished syphilographer.

Leloir (*Internat. klin. Rundschau*, November 30, 1890) was also strongly opposed to the operative treatment of syphilis by excision of the chancre. As an instance of failure, he reports the case of a young man, who, after exposure, feared disease, and brought the woman with whom he had relations for inspection. She was found to be syphilitic, with four chancres, which were shortly followed by eruption. The young man was advised to examine his penis repeatedly by means of a magnifying glass. On the sixteenth day he discovered a minute papule, with a small central erosion. This was immediately excised, and the wound was cauterized. The operation-wound, however, became indurated nine days later, and the patient developed characteristic secondary symptoms. In spite of this case, the observations of Von Langenbeck, Rydigier, Kölliker, Pick, Pospilow, and others show that it is possible to excise, and thus avoid secondary manifestations.

Leloir contributes two instances in which he excised the chancre without the appearance of further manifestations of the disease. The first patient was 22 years old; had had relations with a certainly syphilitic woman; gave a history of about three weeks' incubation; had never suffered from syphilis; and on microscopic examination of the excised lesion, which was removed on the fifth day of its appearance, the typical characteristics of specific ulcer were observed. This patient was kept under observation for three years without any further manifestations of the disease. Leloir would limit the excision to cases in which the lesion observed in its early stage is so situated that the operation is easy and not attended with consequent deformity, where no adenopathy has developed; where there is a single lesion, or, if there is more than one, where they all readily can be removed; where there is no serious constitutional dyscrasia or disease.

Fournier's opinion as to the efficacy of excision in aborting the disease, or rendering its subsequent manifestations milder, is that the effect of this treatment is exceedingly doubtful. Experience has furnished at least one absolute contraindication,—when the glands are enlarged, excision is absolutely futile. When, however, chancres are observed at an early period of development, excision should be performed, since it is not right to refuse to the patient the least chance of aborting the disease. There are many cases, reported by the most competent observers, in which excision has been followed by successful results; yet it has been shown that, in spite of the fact that there is a sore exhibiting all the essential characteristics in history, in development, and in appearance to identify it with syphilis in a small number of cases, constitutional symptoms do not follow.

The cases of cure from excision are so few, compared to the number of failures, that, leaving aside errors in diagnosis, it may well be questioned whether or not excision has, under any circumstances, an effect in preventing the development of syphilis. The whole theory of excision depends upon the fact that in this disease, unquestionably due to a microorganism, there is a distinct seat of entrance, which is accessible to the knife. There is, however, always a period of fourteen days at least before any manifestations appear at the seat of entrance,—that is, for at least two weeks the virus is increasing in the system without exhibiting symptoms. It is highly probable that, even before the first manifestation of the chancre, this virus is somewhat widely diffused, and that it remains at its points of diffusion for a certain period of time without exhibiting even such alterations as can be detected by the microscope. Thus, within from one to four weeks of the period of the appearance of the chancre the lymphatic glands enlarge; yet it is highly probable that the original infection occasioning this enlargement has occurred many days before. Hence excision of the chancre would, on theoretical grounds, since the old theory of limitation of the disease has been exploded, seem to be a hopeless procedure. From a clinical stand-point, however, it is strongly to be advised, since definite knowledge upon this point will only be acquired after a large

number of cases have been carefully observed. For the purpose of accumulating clinical evidence, then, rather than because of any confidence in the method, it is advisable to attempt to abort when the indications as expressed by Leloir are present; and in observing and recording such cases, Fournier's principles should be borne clearly in mind. There is still another reason for excision of the primary chancre, and that is because by this operation a considerable quantity of the original virus is eradicated from the system. It is claimed by many competent observers that, even if this removal does not abort the disease, it considerably attenuates it, so that its subsequent manifestations are considerably milder. This question, too, is still *sub judice*, and will only be settled by careful observation of a large number of cases.

TREATMENT OF HEMORRHOIDS BY DILATATION OF THE SPHINCTER.

FOR the relief of the acute suffering incident to pathological conditions about the anus, Maisonneuve long since earnestly and enthusiastically advocated dilatation of the sphincter. At first employing this method only for the relief of fissure, he afterwards, from practical demonstration of its efficiency, was induced to apply it to nearly all painful conditions about the anus. This distinguished surgeon seems to have employed the method mainly with the idea of relieving pain, and not with the object of curing.

Later, Verneuil advocated this means of treatment as applicable to the definite curing of hemorrhoids. He found that, in the large majority of cases suffering from piles, there is distinct sphincterismus, excited originally by the blood stasis, but reacting upon the original lesion in such a way that the congestion is greatly increased. Such sphincterismus can readily be excited by even comparatively slight causes, such as fissure, varicosity, or acute hyperæmia of the mucous membrane. The contraction of muscles thus excited by its effect on the circulation seems ultimately to bring about a true hemorrhoidal condition.

He found the sphincterismus was coincident in its development with the appearance of the hemorrhoids, hence he concluded that the most efficient way of dealing with piles was to overcome the muscular contractions, which was such a potent means of keeping up local congestion. This muscular spasm he overcame by stretching, taking pains not to rupture, the muscular fibres. He performed his dilatation very slowly, employing the fingers. At first one was inserted, then two, then three, and finally four. The four fingers, held closely together, were gradually pressed in more and more deeply until the proper amount of overstretching was reached.

In recent times the majority of surgeons have preferred to practise dilatation by means of the speculum. This instrument should be strong, should be so constructed that no undue pressure is exerted on any part of the anal circumference, and should allow such wide separation that the sphincter can be thoroughly overstretched. Either general or local anæsthesia should be insisted upon. If ether or chloroform is given, the operator should not begin his manipulations until the patient is completely under the influence of the anæsthetic, since a very large percentage of deaths upon the operating-table have occurred during minor surgical operations about the anus. The reason for this is based upon the theory that anæsthesia not being complete, respiratory or cardiac arrest takes place through reflex action. Satisfactory local anæsthesia may be obtained by the employment of cocaine. If this drug is employed, it should be introduced by means of a hypodermic needle, the latter being thrust at several different points of the mucocutaneous border of the anus into the substance of the sphincter. A two per cent. solution of the drug should be injected. In all about one grain of cocaine is employed, dissolved in a teaspoonful of water.

An important point in making the dilatation is to perform it slowly, so that the muscular fibres and mucous membrane are stretched and not ruptured. This operation is followed by comparatively little pain, the patient experiencing only a certain sense of weight and soreness. It requires no dressing beyond the application of an iodoform suppository, the dusting in of dry iodoform, and the application of some absorbent cotton, held in place by a bandage. Incontinence of fæces will probably result for a few days.

Mercier (*L'Union Médicale du Canada*) states that this method of treatment will be found efficacious in nearly all cases of hemorrhoids, excepting when the latter are very large, and when the anal orifice is relaxed, infundibuliform, without tonicity, and there is prolapse of the mucous membrane. Even in these cases, he states that, though dilatation cannot cure this condition, it will lessen

the violence of the symptoms, and produce temporary alleviation of the suffering.

Under all other circumstances he holds that this method of treatment is recommended by its simplicity, by the absence of complications, and by its efficiency. Though it is comparatively little used by the profession at large, it has been largely and most successfully employed by certain irregular practitioners, some of whom have made a fortune from practically no other treatment than this. It commends itself, too, as a preparatory treatment for operation, and as a curative treatment in those frequent cases who will submit themselves to regular physicians only on condition that no cutting or tying operation is performed. The stretching should be so thorough that temporary incontinence results; and, if the method is properly performed in suitable cases, its results will be found most satisfactory.

MYOPIA THE RESULT OF CONSTITUTIONAL DISEASE.

NEARLY a year ago Dr. Rayner D. Batten endeavored to establish a relationship between hypermetropia, myopia, and certain constitutional conditions depending upon disturbances in the cardio-vascular system. He described a "myopic and a hypermetropic circulation," and endeavored to show differences between them in pulse and cardiac signs.

He has continued his observations, and in the *Ophthalmic Review*, January, 1892, records some observations, which, he thinks, tend to show that myopia may be the result of a constitutional disease, and that there is a frequent association of this form of ametropia with vascular disturbances. He makes a comparison between the elongation of the eyeball in myopia and the deformities which occur in rickety bones under the influence of pressure, pointing out that in each case the mechanical causes have been studied; but that the true reason why the sclerotic expands and yields is unknown, and that it is just as unreasonable to say that myopia is caused by extra use of the eyes, by the action of the ocular muscles, or by the height of the orbit, as it is to assert that rickets are brought into existence by standing, walking, or sitting. Believing that constitutional causes are to a certain extent recognized as factors in the increase of myopia, he does not hesitate to bring them forward as important in its original causation. Although acute myopia is comparatively rare, Dr. Batten argues, if constitutional disturbances can produce it, then it is possible that chronic diseases may stimulate the development of simple myopia.

His conclusions in regard to myopia are the following: 1. Myopia is an inherited tendency, associated with inherited constitutional disease. 2. Commencement and increase of myopia are caused by general and local vascular congestion, and general and local increase of blood-pressure. 3. Commencement and increase of myopia are caused by some constitutional diseases. 4. Myopia is accompanied by a general tendency to hemorrhage (epistaxis, menorrhagia, etc.). 5. Cardio-vascular disease, like myopia, is a product of artificial and civilized life. 6. In myopia the cardio-vascular system shows evidence of a degeneration in high pulse tension, vascular dilatation, tortuous arteries, and heart-disease.

Holding the views just summarized, Dr. Batten naturally concludes that the prophylaxis of myopia is exceedingly deficient. He does not for a moment dispute the value of school hygiene, the prevention of stooping, the avoidance of eye-strain, the use of good light, and the employment of proper print; but thinks that these have been shown to be insufficient to prevent the increase of myopia, because the real agent which is at work has not been recognized, and this agent he considers to be the disturbances in the cardio-vascular system, which have already been referred to.

This ingenious, but not altogether novel, view naturally suggests that the treatment of myopia should be not alone a preventive one by the ordinary means in use, or a mechanical one, if this expression is permissible, by the correction of refractive error, but also a constitutional one. He refers to some observations of Dr. S. D. Risley, of this city, on eyes which passed from hypermetropic to myopic refraction while under observation, and might also have referred to the belief of this author, and of a number of other observers, that a certain amount of good accrues to the subjects of refractive error by the judicious use of medicinal agents. It must be the experience of every one whose practice is largely connected with the treatment of diseases of the eye, to see good results follow the use of drugs whose physiological action tends to regulate disturbances in the circulation. It is true that they are usually given with the hope of dissipating

local congestions in the eye, which Dr. Batten would have us believe in many instances are the remains of what was once a general cardio-vascular disease. Be this as it may, digitalis, ergot, and strychnine, all of them powerful vaso-motor stimulants, as well as various alteratives, often exercise a happy influence on eyes exhibiting retino-choroidal disturbance.

Dr. Batten's paper is essentially theoretical, although he quotes a number of imperfectly-reported cases in support of the propositions which he advances. One lesson is taught, however,—namely, that optical therapeutics, or the correction of refractive error, should not alone be considered sufficient. Drugs should be prescribed in suitable cases according to the evidence obtained by ophthalmoscopic examination and by the condition of the vascular system of the eye itself, as well as of that of the general constitution, if the highest type of ocular health is to be secured.

SOME OF THE INTERNAL USES OF CANTHARIDES.

TO many practitioners the internal employment of cantharides is almost a novelty, yet it has been used by physicians in some portions of the world for many years for the purpose of affecting areas widely separated from one another, or, at least, suffering from various diseases. As with many other substances, which, in large amount, act as irritants, cantharides acts in small amounts as a stimulant to epithelial cells, in many instances improving the condition of the skin in diseases affecting its nutrition and increasing renal activity in maladies situated in the kidneys. Quite frequently we see cases in which, after an attack of acute nephritis, the urine remains scanty and the renal action is defective. Sometimes in fatty kidney, such as is met with in persons who drink excessively of beer, a similar state of renal incompetency is present, and it is by no means rare to have cases present themselves who may or may not be sufferers from cardiac asthma, and who have engorged and congested kidneys from circulatory and pulmonary disturbance. These forms may all of them be associated with albuminuria in a more or less severe form, and casts may be present in considerable numbers. A very much more common series of cases includes those who seem to be out of sorts because of renal atony consequent upon organic renal disease. In all of these conditions it will be found that tincture of cantharides, in small doses of ½ to 1 drop three times a day, with or without digitalis, will do much towards stimulating the depressed and inactive secretory epithelium of the kidney to increased exertion. If the drug act favorably, it will cause a very distinct increase in both the liquid and normal solid constituents of the urine, decreasing simultaneously the amount of albumin.

Sometimes a case will present itself suffering from chronic contracted kidney, in which there will be considerable œdema of the calves of the legs and thighs, and for this reason, and because of deficient nutrition, the skin of these parts takes on a purple appearance, while at various spots early signs of leg ulcer manifest themselves, or an eczema rubrum is developed. In such a case the administration of tincture of cantharides, in the amounts named, results in a decrease in the œdema and in great modification of the skin lesions. Dermatologists have long known that internal doses of cantharides prove useful when chronic scaly inflammations of the skin are present, and it is, therefore, evident that the action of cantharides in such a case as that named is not only indirect through its renal influence but direct through its effect on the skin itself.

Full doses of tincture of cantharides are not to be resorted to if small doses—that is to say, 2 drops three times a day, at the utmost—do not prove efficient. There is the danger of inflaming the secreting cells in an injured kidney, and so disabling the entire organ temporarily or permanently.

Another very useful employment of cantharides internally is, in some forms of urinary incontinence, dependent upon lack of vesical control. As was pointed out by Ringer, women will be met with who, after childbirth or prolonged illness, not associated with urinary disease, will be troubled by the escape of a few drops of urine on making a sudden movement, on coughing, or when beginning to laugh. Sometimes in chronic bronchitis of the aged this lack of vesical control is a cause of great misery. No remedy seems so competent to cause permanent relief in these states as tincture of cantharides in ½- to 2-drop doses three times a day. Eliminated by the kidneys, the cantharides stimulates the sensory nerves in the mucous membrane of the bladder, just enough to restore reflex activity to its proper level, and thereby preserves the retentive power of the sphincters.

Should a decrease in urinary secretion

occur when cantharides is being employed, it must be immediately withdrawn, as this sign indicates that renal stimulation has passed on to renal irritation.

THE FUNCTION OF MYDRIATICS IN CORRECTING ERRORS OF REFRACTION.

"NOWADAYS the corneal astigmatism is measured with an ophthalmometer, and the rest of the work is easy with no mydriatic." This is the closing sentence in an editorial communication published in the *Post-Graduate* for February, 1892. With the main portion of this communication we are not at present concerned, but the sentence which has been quoted demands some consideration and a good deal of condemnation.

It is evident that refractive error may be corrected in one of three ways,—first, by what the writer in the *Post-Graduate* is pleased to call "the ancient practice,"—namely, paralyzing the function of the ciliary muscle with a mydriatic, and working out the refractive error with the trial lenses; second, with the shadow-test; and third, with an ophthalmometer. In an uncomplicated case, the tissues of the eye being in a reasonably healthy state, the ultimate result of the correction will probably be good, no matter which one of these methods is employed, provided the surgeon is skilled in its use; and we have no doubt, both from our own experience and from that of our colleagues, that excellent results are secured in the absence of prolonged mydriasis with retinoscopy, and independently of a mydriatic with an ophthalmometer.

We are equally well assured, however, that the function of a mydriatic in the correction of anomalies of refraction does not alone depend upon its ability to paralyze temporarily the ciliary muscle and uncover the error of focus, but that it also exercises a definite physiological action upon the coats of the eyeball in addition to its cycloplegic power. The corneal astigmatism may be accurately measured, the exact degree of associated myopia or hypermetropia may be properly determined, the combination may be ground into spectacle lenses by a competent optician and fitted to the eyes of the patient, but if the deeper structures of the eyeball are not healthy, or have not received an impulse to regain their normal state, the prime object of the correction will fail. The most perfectly fitting shoe that has ever been manufactured will not permit its owner to walk with comfort if the foot which it covers is inflamed.

It is fair to assume that a mydriatic exercises three functions,—first, to paralyze the ciliary muscle; second, to dilate the pupil, and hence to facilitate a thorough examination of the refractive media and the periphery of the eye-ground; and third, to place the eye at complete physiological rest, so that the lesions so commonly present as the result of prolonged eye-strain may subside, not alone, we take it, merely because there is physiological rest, but because of a distinct sedative influence exercised by the drug. It is true that the terms "congestion of the choroid," "hyperæmia of the retina," and "irritation of the nerve-head" are indefinite, and are often employed to describe conditions which do not exist; but it is also true that in "stretching eyes," or in eyes that have long been used without the aid of suitable glasses, various changes arise in the choroid, in the retina, and in the nerve-head which are not compatible with comfort until they have been dissipated by rest, aided, as we have just stated, by rest combined with the third function of a mydriatic. What practising ophthalmologist is there who has not seen the vision of an eye improve from day to day under the influence of a mydriatic? What practising ophthalmologist is there who has not on the first day of his trial of the refractive error failed to secure normal vision with the best possible correction, when a day or two later, with exactly the same correction, full, or even more than full, acuity of vision has been gained? What practising ophthalmologist is there who has not seen case after case of violent ocular headache utterly fail to disappear when "the corneal astigmatism has been measured with an ophthalmometer and the rest of the work has been done without a mydriatic," but has secured speedy relief for his patient by dilating the pupil with atropine, or some drug of allied physiological properties?

We are very far from decrying either retinoscopy or the use of an ophthalmometer,—both of them advances in practical ophthalmology of inestimable benefit; but we are also very far from believing that the high standard of refractive work which has been attained in this country, certainly in some portions of this country, will continue to maintain the position which it now holds, or will advance still further, if the doctrine is

taught that the use of mydriatics is an "ancient practice," and that the measurement of corneal astigmatism with an ophthalmometer is always sufficient. A sentence in the last edition of Mr. Nettleship's excellent manual is *apropos:* "I think that there is reason to fear that the free use of retinoscopy by students, before they have mastered the more difficult 'direct method,' may tend to lower the present high quality of English ophthalmoscopic work." Equal dangers are the tendency to trust an ophthalmometer too implicitly, to fail in the detection of low degrees of astigmatism, and, finally, to adjust glasses to eyes that are not fitted to wear them, because there has been an imperfect examination of the refractive media and periphery of the eye-ground, and because the results of eye-strain have not been eliminated by the sedative measures to which allusion has been made. An ophthalmometer should always be used, and in suitable cases a mydriatic may be excluded; indeed, it is readily granted that it is often unnecessary; but the doctrine that mydriatics should not be employed in the estimation of errors of refraction is unworthy of converts.

Reports on Therapeutic Progress.

THE EMPLOYMENT OF THE TINCTURE OF CORONILLA IN THERAPEUTICS.

POULET, in the *Bulletin Général de Thérapeutique* for December 15, 1891, contributes an article upon this new cardiac medicament, and after pointing out that its action is exceedingly useful in many cases, he next calls attention to the fact that in 1888 Schlagdenhauffen and Reeb studied this substance chemically and physiologically, and isolated from it an active principle called coronilline, which is a glucoside. Poulet states that he has employed the tincture of coronilla with most excellent results in the treatment of paroxysmal tachycardia, being able to overcome pain and the other grave symptoms which accompany this condition, particularly in those cases which depend upon disease in the aortic or mitral valves. The favorable influence it exercises in cardiac asthma is very extraordinary. The appetite improves, and the drug seems to exercise a stimulating and tonic effect upon the digestive tract. In a case of acute hyperæmia of the lung, with tachycardia, agonizing dyspnœa, and danger of fatal asphyxia, he employed coronilla, with the result of obtaining rapid resolution and the avoidance of all complications. The dose under these circumstances was 2½ drachms of the tincture in eight hours, the patient being a man of 64 years. He had lost a brother at the age of 52 from pneumonia and a sister from heart-disease and dropsy at 58. The patient himself has also had frequent attacks of broncho-pneumonia and rheumatism. When first seen there was very marked dyspnœa, high fever, severe cough, and expectoration of a large quantity of glairy mucus, the respirations were 44 per minute, and the pulse varied in frequency, but reached as high as 180 per minute, being small and exceedingly difficult to count. The tongue was coated and nausea was present. On auscultation the respiratory murmur was very feeble, and there was diminished resonance on the right side. He was immediately ordered the tincture of coronilla, given in divided doses every hour. On the following day the patient was wonderfully improved, and passed a good night. His condition was excellent, and he presented a marked contrast to the anxious state of the day before. The tongue was clean, the cough decreased, and the expression natural. The respiration was 20 per minute, and the pulse 80, strong, and regular, while the respiratory and cardiac sounds were normal; to use the words of the reporter, it was a "complete metamorphosis." In another case, in which there were dyspeptic phenomena with vertiginous attacks and cardiac disease, in which the alkaline treatment of the dyspepsia failed, all the symptoms disappeared on the use of the drug. The patient was a man of 51 years, moderately stout. He had suffered for a long time from gastric vertigo. The disease had progressed until there was a good deal of general feebleness, and when he came under treatment there was marked palpitation of the heart, with more or less cyanosis. There was pain in the region of the occiput, and the head could not be turned with ease, owing to the increase of this pain. The action of the heart was frequent but regular, the pulse 104; the impulse and force was apparently normal, but the sounds were exaggerated. Persuaded that the trouble was cardiac, the patient was placed upon a treatment of tincture of coronilla and a proper diet. Four weeks afterwards it was found that the vertigo had disappeared completely, that the head could be moved without pain, and that the dyspeptic phenomena were less, as was also the frequency of the pulse and the cyanosis of the lips. He could now walk a considerable distance with ease, and the change in his appearance was radical and com-

plete. In still another case, in which the patient suffered from a sunstroke, complicated by gastric and circulatory disturbance, equally favorable results were obtained, the patient being a man of 35, who suffered greatly from frontal headache and bilious vomiting. The vertigo was continual and the condition of the patient serious. Locomotion was almost impossible. The appetite was poor, the tongue clean, and the patella reflexes normal. The pulse was 90 and irregular, and an examination of the heart showed arhythmia at this time. Forty-five minims of the tincture of coronilla was ordered each day for one week. Very marked improvement took place, the vertigo disappeared, the appetite was better, as was also his taste, so that the patient regarded himself as convalescent. A number of other cases are reported in which equally favorable results were obtained. We may, therefore, regard coronilla as a remedy which is very useful in nervous affections of the heart and as a remedy for quieting erethism. For these reasons Poulet believes that it is of great advantage in those cardiac troubles which arise from sexual excesses or the abuse of tobacco, coffee, or alcohol. According to the studies which have been made of this drug experimentally on the lower animals, it has been found to cause arrest of the heart in systole, when given in full doses, in much the same manner that digitalis acts, and to cause death by cardiac failure. In medicinal doses it slows the beat of the heart, but does not diminish the size of the pulse-wave if the dose is a proper one.

A FATAL CASE OF POISONING FROM POTASSIUM CHLORATE.

In the *Occidental Medical Times*, DR. ABRAMS reports the following case of poisoning: A. L., aged 3 years, on the 24th of November, 1891, at 2 P.M., swallowed the contents of a bottle containing about thirty 3-grain chlorate of potassium lozenges. At 5 P.M., on the same day, the child vomited for about fifteen minutes, and expelled about twelve or more lozenges. After vomiting, the little patient appeared to be well until eleven o'clock at night, when vomiting again occurred, together with marked cyanosis and all the symptoms of collapse. Dr. Simon saw the child at this time, and administered the usual restoratives, with the result that the patient rallied, although the cyanosis persisted.

On the following day (second day after the intoxication) about two ounces of dark-colored urine were passed, which was shown by the spectroscope and by Teichmann's test to contain altered hæmoglobin (methæmoglobin). There were no blood-corpuscles recognizable with the microscope, nor other distinctive morphological elements. On this day the child complained of abdominal pains. Synchronous with the pain there was a slight elevation of temperature (about 102° F. in the rectum), which continued until the fourth day of the intoxication. During all this time the cyanosis persisted.

The child so far not having voided an appreciable quantity of urine, a condom was attached to the penis, which showed that up to the death of the patient, six days after, almost complete anuria existed, only five or six ounces of urine being expelled during the entire period. This urine was very turbid, and contained about seven per cent. of albumin. The sediment showed absolutely no casts or renal epithelium. On the sixth day of the intoxication, symptoms of uræmia were first noted, manifested objectively by clonic spasms in the muscles of the face and extremities, amaurosis, emesis, and diarrhœa. At this time there was a slight elevation of temperature, which pursued an atypical course until the death of the patient.

It was also noted that the cyanosis disappeared, to be succeeded by icteric coloration. The stools were of a dark-red color, which awakened the suspicion that blood was present. This view was dispelled by tests, which showed the coloring-matter to be bilirubin. The spleen was slightly enlarged, and petechiæ were present on the abdomen. During the entire course of the child's sickness the heart-sounds were clear, although occasionally arhythmic. On the eighth day slight œdema of the eyelids was observed. On the ninth day pulmonary œdema developed, and on the tenth the child died.

The treatment pursued was as follows: Inhalations of oxygen until the cyanosis disappeared; strophanthus and digitalis, used alternately, as cardiac tonics and to promote diuresis; cold water affusions to the chest and back of the patient while immersed in warm water. The diet consisted exclusively of peptonized milk containing brandy in variable quantities, according to the child's condition as indicated by the pulse. When the uræmic symptoms developed, large quantities of water were drunk, and diuresis was promoted by a fresh infusion of digitalis and acetate of potassium. Hot-water and alcohol baths and enemata of glycerin were also administered.

The foregoing case presents the usual symptom-picture of poisoning from potassium chlorate. It is evident from the clinical history that the cause of death was secondary renal involvement. The absence of casts and other evidences of nephritis fail to explain the oliguria. The explanation of the latter is, in all probability, as follows: In consequence of the rapid destruction of the red blood-corpuscles by the potassium chlorate, the hæmoglobin thus liberated is quickly excreted (Ponfick. Congress f. innere Medicin," Wiesbaden, 1883; Adami, *Journal of Physiology*, No. 6, 1885), not only by the glomeruli, but also by the renal epithelium. The result would be, in consequence of inactivity of the renal epithelial cells, the accumulation in the tubuli uriniferi of hæmoglobin, which, in a mechanical way, seriously involves the secretion of urine. The condition would be somewhat analogous to the uric acid infarctions of the kidney sometimes occurring in children.

TREATMENT OF TAPE-WORM.

According to *L'Union Médicale*, December 3, 1891, CREQUY recommends the following capsules for the treatment of tape worm:

℞ Oleoresin of male fern, ʒii;
Calomel, gr. v.

This is to be divided into sixteen capsules. Early in the morning one of these capsules is to be taken every five minutes with a tablespoonful of sweetened water.

As a general rule the tape-worm is swept out a few minutes after the ingestion of the last capsule. In some cases where the removal of the worm is tedious, it is customary to give to the patient two hours after the last capsule has been taken a large dose of spirits of chloroform or Hoffman's anodyne, and if the worm is not now passed it may be necessary to administer to the patient a full dose of castor oil in black coffee.

THE TREATMENT OF CHLOROSIS BY BLEEDING AND DIAPHORETICS.

In the *Revue de Thérapeutique Générale et Thermale* for 1891, SCHUBERT has contributed a paper upon the treatment of chlorosis by bleeding and diaphoresis. Although this treatment seems at first sight to be paradoxical, it is, nevertheless, one which has been tried by other physicians, and which Schubert believes to be distinctly beneficial in many cases.

The fact that it was of benefit was first discovered through the improvement which took place in those cases of chlorosis which suffered from an attack of epistaxis or of hemorrhage from the stomach. From his experience with it, Schubert is convinced that the method is worthy of general adoption by physicians. The amount of blood which is to be taken away varies from a few minims to several ounces. The results are generally very rapidly produced, so that after five weeks' treatment the patient becomes very much improved. The author quotes Wilhelm, who has reported thirty cases of chlorosis treated by bleeding, and who reaches a similar conclusion as to its value. Closely allied to the treatment of chlorosis by bleeding is that of Schultz, of Bremen, who has employed diaphoretics for the same purpose, combined with laxatives, and sometimes with bleedings. Schultz claims that under the influence of this combination of methods, the symptoms of the disease disappear with great rapidity. The amount of blood which is taken by Wilhelm is eight to ten drops for each two pounds of body-weight. Schubert, on the other hand, withdraws but fifteen or twenty drops. After the bleeding, the patient should rest in bed for twenty-four or forty-eight hours, and should receive acidulous drinks and liquid diet.—*L'Union Médicale*, December 3, 1891.

CASES OF ARSENICAL POISONING.

A very unfortunate double fatality, through misadventure, recently occurred at Orange Vale, Sacramento County, California (*Occidental Medical Times*, January, 1892). A Mrs. Z. T. Brandon prepared a quantity of biscuit, using, as she supposed, two heaping teaspoonfuls of baking powder, which, unfortunately, proved to be arsenic. The arsenic was in a can standing close to one containing baking powder, the label and can being identical in both cases. The woman and her husband ate heartily of the biscuit, two of the children also consuming some, though more sparingly. The eldest son, who had been sick, did not partake of the meal. The characteristic symptoms of arsenical poisoning were soon manifested, and though medical assistance was promptly summoned, Mr. and Mrs. Brandon died in a few hours, after great suffering. The two children, in whose case the quantity ingested was smaller, survived. The matter vomited by the victims was thrown into the yard, and was there eaten by some chickens, which died shortly after. The arsenic had been employed in taxidermy, and the quantity of the drug used in

the food was not less than five hundred and twenty grains.

The *Chemist and Druggist* states that the wife, six children, and the servant of Mr. George Monk, saddler and tripe-dresser, of Blackburn, have been poisoned by partaking of dumplings with which arsenic had accidentally been mixed, and which were prepared for Monday's dinner. The servant, Louise Walker, aged 17, died, but the others recovered. The dumplings were made by one of the daughters. As the paste of two of them was too thin, she thickened it with what she believed to be flour from a canister, but which was really arsenic, which Mr. Monk had been using on the sore leg of one of his horses. The canister was labelled "poison" when Mr. Monk used it, and it was put on an upper shelf in the kitchen. The servant at Christmas time tore the label off, believing that the tin contained flour, and put the canister on the lower shelf. The servant ate heartily of the dumplings, the others only sparingly, as they found something wrong with the taste.

CRYSTALLIZED CHLOROFORM.

The *British Medical Journal* for January 2, 1892, states that it has received from MR. MARTINDALE, New Cavendish Street, a specimen of the chloroform prepared by Pictet's new method of crystallizing, suggested by Professor Oscar Liebreich. It is crystallized at a low temperature, the mother liquor is separated, and the crystals on liquefaction produce a body which has a much more uniform boiling-point than that prepared by the ordinary methods. The specific gravity is not quite up to the promised point of 1510, but it appears to be about 1488, which probably indicates that a small addition of alcohol has been made to preserve it. It is, however, apparently a preparation of chloroform which is pure, and has a more uniform boiling-point than those which have hitherto been presented in commerce. No doubt this will be found an interesting product for medical use and for clinical investigation; and it is to be hoped that its use may be accompanied with less risk, but as to this nothing can at present be said.

Attention has recently been called to the fact that the want of uniformity in the boiling-point of the chloroforms, which are at present supplied for medical use, is a subject which apparently deserves considerable attention, and may prove to be of some practical importance. At any rate, in view of the numerous deaths which it has been our painful duty to chronicle during the past year, it will certainly induce particular attention to every point, whether in the composition of chloroform or in the mode of administration which can reduce the number of such fatalities. As has been already mentioned, special attention has been given to this subject by the Anæsthetics Committee recently appointed at the suggestion of the Section of Therapeutics at the meeting of the British Medical Association at Bournemouth, and meantime administrators of chloroform will, in our opinion, certainly do well to pay especial attention to the boiling-point of the chloroform which they are using. The boiling-point of pure and homogeneous chloroform is usually stated at 143.6° F. Of course allowances must be made for variation of pressure according to temperature. It will probably be found, when attention is given to this matter, that the variations in boiling-point extend over a wider range than might have been expected.

TREATMENT OF CHOLERA NOSTRAS OF ADULTS WITH LARGE QUANTITIES OF WATER.

DR. K. FIEDLER says he had the opportunity to observe, in Dresden, in 1890, several cases of cholera nostras in adults. In the first case, a woman 54 years old, when in her usual good health, ate of cabbage with zest at dinner. In the evening she went out, and after her return she was suddenly taken ill, about eight o'clock in the evening, having felt dizzy when on the steps. Sweating first appeared, then diarrhœa, pain in the belly, with nausea, and vomiting. Diarrhœa and vomiting quickly increased in frequency, oppression and anxiety appeared, then cramps in the calves of the legs. Subsequently there was transient faintness.

When seen by Fiedler, the patient was in collapse, with pale cyanotic face, cold sweat upon the face and brow, deeply sunken eyes, dry, red tongue, and cold hands and feet. The pulse was small and could scarcely be either felt or counted, but beat at about one hundred and thirty to the minute. The patient complained, with a hoarse, low voice of anguish, of thirst and great pain in the limbs. After violent retching, only a scanty yellow mucus was vomited. The passages, which occurred almost without interruption, no longer contained food, but had the dreaded rice-water appearance. The retracted belly seemed to be a little sensitive to pressure.

Tincture of opium was prescribed, and pieces of ice to allay the thirst. Efforts were made to keep the body warm, and direction was given to apply a wash if general sweating should occur. The next day the patient complained that the ice had made her abdominal pain and diarrhœa worse, but that several cups of tea had made her feel better. In general her condition was unchanged. Dr. Meinert, who then saw the patient, ordered the opium stopped, and directed the patient to drink freely of ordinary tap water. On the following morning there was a very pronounced improvement. During eight hours the patient drank a quart of water every hour. All the symptoms had improved, and the next day the patient was dismissed from treatment.

Two other cases received the same treatment, and also recovered very promptly and satisfactorily. — *Therapeutische Monatshefte*, December, 1891.

THERAPEUTICS OF DISEASES OF THE HEART AND BLOOD-VESSELS.

Dr. Von Basch, of the University of Vienna, in a work which has just appeared on the general physiology and pathology of the circulation, says of the slow pulse that if it depends upon a weak condition the treatment will be general, while if it depends upon some disturbance of the nerve-supply, remedies, such as atropine, which lessen the influence of the vagus are indicated. Certain conditions must be considered which act reflexly by developing a high arterial tension, such as distention of the stomach or bowels, and constipation. The effort may be made to stimulate the centres which accelerate the heart's action by reflex influences of various kinds, such as baths, irritation of the skin, and muscular movements.

In the case of acceleration of the pulse it must be decided whether it is advisable to change it for a slow pulse; for acceleration of the pulse under certain circumstances, especially in heart lesions, may develop more favorable conditions of the circulation. If it acts injuriously, it must be treated. Cold, as a rule, is a sovereign remedy, and narcotics and the bromides are to be thought of.

The condition variously known as weak heart, asystole, heart starvation, must under all circumstances be subjected to treatment. In primary insufficiency dependent upon disturbance of innervation, everything which can cause it must be got rid of. Then the effort can be made to diminish the excitability by a cautious kind of hardening. If the tension of the pulse is low it must be raised by irritation of the skin or by strychnine. The coexistence of the heart lesion indicates that the primary insufficiency may be due to a special disease of the heart. Other causes are the general diseases, such as typhoid fever, diphtheria, and pneumonia. The heart must be treated as well as the general disease. Heart remedies play here a most important *rôle*, and as the contraction of the heart can be favorably influenced also by reflex excitation of the heart nerves, active and passive gymnastics, baths, and treatment by cold water, which act in this way, seem to be justified. This kind of treatment affects the whole heart, for up to the present time no remedy is known which influences one side of the heart and not the other. Nevertheless, if stasis occurs in the lesser circulation, the breathing must be made easier, and if stasis occurs in the larger circulation, secretion by the kidneys must be promoted.

Dilatation or contraction of the lumen of the vessels can be brought about by disturbance of the vaso-motor system. When excess of blood in the portal system leads to scarcity of blood elsewhere, the vaso-motor system should be influenced directly by medicines or reflexly. Peristalsis should be stimulated, any existing catarrh of the stomach and bowels got rid of, and the portal hyperæmia obviated by heat, massage, electricity, etc.

Contraction of the vessels, especially of the portal area, raises the blood-tension in the left ventricle also, and this leads to a secondary insufficiency of the latter. The high tension must therefore be obviated, and first by the removal of its causes. These are bodily and mental excitement, immoderate use of alcohol, coffee, and nicotine, lead-poisoning, a voluptuous life, etc. The stimulation of profuse intestinal secretion by purgatives seems to be preferable to the use of those remedies which lower blood-pressure.

In disturbances of accommodation the chief thing is to save the heart from strain and give it rest. These seem to be especially demanded where high arterial tension arose from bodily overstrain, but not when pathological resistance, such as arterio-sclerosis, has led to the increased heart strain. The cause of the arterial sclerosis must be avoided; the preparations of iodine have a reputation in its treatment. If the disturbance in accommodation has become constant, more care is required in the treatment than in primary insufficiency. The development of a high arterial tension in the latter does good, because it favors filling of the coronary arteries and consequently promotes

the nutrition of the heart; whereas high arterial tension in secondary insufficiency is a disadvantage. Hence it seems clear that the same bodily exercises which are of use in primary insufficiency exert an unfavorable influence upon secondary insufficiency.

The disturbance of accommodation of the vessels which is of special importance is that which permits of increased fulness of the vessel without an increase of its tension. Such a disturbance can lead to universal plethora. In this condition lessening of the volume of blood by withdrawing liquids possesses therapeutic value. But so long as the vessels have preserved their power of accommodation such a measure can be of no value. On the other hand, if the disturbance of accommodation is such that the supply of blood in the vessels is diminished, then there is nothing to do but to increase the volume by transfusion.—*Zeitschrift für Therapie*, December 1, 1891.

IODOFORM SPONGES.

RETTENHEIMER states that iodoform sponges may be prepared in the following manner: Suitable soft sponges are thoroughly boiled in water, then allowed to remain for five days in a five per cent. solution of hydrochloric acid, and at the end of that time thoroughly washed in pure water to remove all acid, and finally dried. They are then placed in a 7.5 per cent. ethereal solution of iodoform and allowed to remain there until the ether evaporates.—*Pharmaceutical Record*, December 17, 1891.

ENTERIC FEVER TREATED BY LIQUOR SODÆ CHLORINATÆ.

The antiseptic treatment of typhoid fever has been so highly lauded by some physicians, and has so often proved useless, that the latest suppliant for popular favor is worth mentioning, —namely, chlorinated soda. Pearson, of Cape Colony, writes to the *Lancet*, of December 5, 1891, that he has found the following method extraordinarily successful in a very large number of cases. He prescribes from 15 to 20 minims every three or four hours of a solution made as follows, and gives no other medicine whatever, maintaining a milk diet: The solution is made by dissolving one and a half pounds of carbonate of sodium in twenty-four ounces of water, and by triturating thoroughly a pound of chloride of lime in one hundred and twenty ounces of water. These liquids are now filtered and mixed together, and then again filtered. The solution should be perfectly clear and free from traces of lime, and should be kept in a cool place. This treatment Pearson continues until the temperature has remained normal for two days.

POULTICES.

A writer, who signs himself a "professional failure," contributes to the *Provincial Medical Journal*, for January 1, 1892, some useful points concerning these much-abused and now somewhat obsolete applications. After speaking of ordering remedial measures by rule of thumb, and the frequency with which many give remedies carelessly, he remarks that many of us misuse and misapply poultices. Among domestic remedies the poultice is one of the most common, and it is curious to note how completely its action and management are misunderstood; the popular idea is that its value mainly or entirely depends upon the substance of which it is made, just as Celsus taught eighteen hundred years ago; and we are often asked with the gravest concern to decide if it should be of linseed, of bran, or of bread. I sometimes reply, "Of anything you like, if it be only large and hot enough," and get into disgrace for my levity.

But as a poultice is really only a means for applying warmth and moisture, its material is obviously simply a matter of convenience. Linseed meal is excellent, for when properly mixed the mass adapts itself closely to the surface to which it is applied, and, if of sufficient bulk and proper initial temperature, keeps hot longer than its rival bran, but its odor is more disagreeable. But the linseed itself has nothing medically to do with the result, and it is absurd to think that the "crushed seed"—that still containing the oil—is any better for the purpose than the very much cheaper powdered cake from the oil-mills. Or, again, that if messily put next the skin it is "stronger" or acts better than when neatly applied with a piece of interposed linen. Bran in one respect is more convenient, for it can be reheated in a minute by dropping the bag containing it in scalding water; and its elasticity also makes it a capital bed for an inflamed limb. Chamomile flowers are dearer and just as intrinsically worthless, but their pleasant perfume makes them preferable for poulticing the face or neck. Bread is very handy, is free from odor, is cheaper than linseed, and the idea of waste is only sentimental.

But setting aside all this, the utility of a poultice is not very clear, and in many cases—as in pleurisy, pneumonia, and nephralgia—it must be almost, if not quite, imaginary. With

the inflammation which precedes the formation of a superficial abscess, and in carbuncle, it appears to relieve pain by softening and relaxing the skin, or, possibly it may act as a feeble local anæsthetic; we know that a warm bath will send a sick or fretful child to sleep almost before it can be rolled in the blanket, and a good poultice is, one may say, a hot bath if of very limited dimensions. But as this feeling of comfort is often a temptation to temporize, a councillor of cowardice, it may put off recourse to the abscess-lancet until serious, perhaps irreparable, mischief has been done, and so do harm; while the common belief that a poultice hastens maturation is quite illusory; two or three doses of gelsemium, I have often demonstrated, will do more in that direction than, and relieve the pain as well as, the most assiduous application of the daintiest of cataplasms.

But in order to do any good (the power to do good thereby being conceded), to effect any but the most superficial change, the poultice must be quite hot,—from 120° to 170°,—and must keep so for a reasonable time: when its heat has fallen to the natural temperature of the skin its effects must be *nil;* it has become a burden instead of a comfort. Therefore there must be enough of it, it should have been made with scalding water, and it should be replaced every two or three hours. The preposterous —that is, putting the last first—notion that the material is of more consequence than the temperature, has led, however, to the popular disregard of the second condition, and the use of those uncomfortable applications, cold poultices, which can but feebly sodden the skin; for whether a well-made and thoroughly hot one be of any remedial use or not, there can be no doubt of the feeling of comfort it often affords. But now suppose we have suggested the application of one for pleurodynia, that vague and harmlessly alarming pain in the chest so dear to the family practitioner; at our next visit we generally find a thin layer of linseed dough, which has been allowed to dry and harden, next the skin, to the ultimate annoyance of the patient, but regarded with calm satisfaction, if not pride, by the amateur nurse in attendance; and if we expostulate or laugh at it are met with the indignant retort, "It was made with the *best* linseed, and had been on all night." And, as the patient is probably well from the prolonged rest in a warm bed, how can one, without self-stultification, gainsay the inference!

It would be impertinent to explain here how a poultice should be made, but it may not be amiss to point out that, having been made and once used, there is no need to incontinently throw it away: it may be used very advantageously over and over again by simply reheating it.

I am not very fond of them myself, but many of my patients are, and to the poorer the cost of several days' or even hours' efficient poulticing is not to be disregarded. So I tell them to make two good ones while they are about it, and to apply them alternately, letting one be reheated—if small, *en masse* in a colander over a saucepan of boiling water; if large, in the saucepan itself—while the other is in use; and only to throw them away when they begin to smell sour.

But as the sole effect is, as I have said, the application of warmth and moisture, there is no need for these messy applications. For instance, a strip of flannel dipped in hot water, wound around an inflamed finger or limb, and covered with a layer of gutta-percha tissue, is a far neater application and one quite as efficient. And for the chest or back one of those convenient india-rubber hot-water bags with, if one please, a piece of wet flannel interposed is far better. While, for the abdomen, where a poultice large enough to be of any use would be too heavy, a double or quadruple layer of flannel wrung out of hot water best replaces it; and a notable old woman showed me the other day that one of those capital "potato mashers" is the best thing in the world for squeezing it dry without scalding one's hands. Some odd ingredients are not unusually added to the water, it is even said by professional advice, such as poppy-heads, chamomile flowers, mallows, and other simples of the old herbalists; but it is somewhat hard to realize what the intelligence or knowledge of the practitioner must be who can countenance anything so absurd. However, they can do no harm, far less harm probably than any more active treatment similarly inspired, and may amuse the patient.

An ideal heater—it cannot be called a poultice—would be one of the type of the German foot-warmer,—an india-rubber bag sufficiently filled with crystals of acetate of soda, which is hung in very hot, nearly boiling, water until they melt in their own water of crystallization. The bag is then to be wrapped in flannel and applied to the painful part, and as the liquid slowly resumes the solid form it gives off an equable heat for some hours without further trouble, and may be so used as often as one pleases.

But a great deal of mischief is done by per-

mitting the poulticing of burst or opened abscesses and matured carbuncles; the soddened skin, the retained pus and sloughs, the often sickening odor, remind a sanitarian of the difference between a closed and water-logged sewer, and one with a good fall and thoroughly ventilated. When pus and ichor have once free vent, dry cotton or wood-wool dressing and dilute nitric acid lotion give results which can hardly be surpassed in rapid healing.

And with hypodermic injections of morphine to relieve pain so effectually in pleurisy; carbonate of soda and opium—to say nothing of turpentine enemata—to be as effectual in colic; and a treatment so simple as "any purgative you please" to cure peritonitis; what have we to do now with these steaming reminiscences of the village nurse and the laundry-maid?

CASE OF DIABETIC COMA TREATED ACCORDING TO THE SUGGESTION OF STADELMANN.

Dr. A. Koettnitz recalls the investigations of Stadelmann, Minkowski, and Külz, who have stated clearly that diabetic coma is associated with the occurrence of an acid, which Stadelmann regards as croton acid, and Minkowski and Külz as oxybutyric acid, the latter easily being decomposed into the former upon chemical manipulation. With the increase of this acid in the urine coma threatens.

Stadelmann has proposed to incorporate as large a quantity of alkali into the body as possible, in order to neutralize this acid, and particularly to undertake intravenous injections of three to five per cent. solutions of carbonate of sodium. Unfortunately, in only one of the eleven cases collected by Stadelmann was this treatment followed by recovery. Stadelmann has since complained that in a few cases the bicarbonate has been used. He objects to the bicarbonate because it contains an excess of carbonic acid. He recommends for injection a fluid composed of one hundred and fifty cubic centimetres of physiological salt solution, to which 7.2 grammes of sodium carbonate and 4.6 grammes of sodium bicarbonate have been added. This solution, which may also be made weaker, is injected in sufficient amount to make the urine alkaline. The pulse, respiration, etc., are to be carefully watched.

Koettnitz reports a case in which he tried Stadelmann's method. The patient was a woman, 43 years old, who had suffered from diabetes for about three years. She had had six pregnancies, but only borne two children, one of whom is an idiot. She has always been nervous. During the past year, when Koettnitz had the patient under observation, the quantity of sugar in the urine varied between three and a half and four per cent., frequently reaching as high as seven per cent. The patient suddenly lost her husband two and a half years ago, and since then has been still more nervous; in fact, had profound neurasthenia. Unexpectedly one day she became comatose. She was given an intravenous injection of one quart of warm physiological salt solution, made alkaline with a drop of sodium hydrate, to which thirty grammes of sodium bicarbonate and forty-two grammes of sodium carbonate had been added. After the entrance of about a pint, a striking change in the patient occurred; she became warm, began to move again, and answered questions, but did not open her eyes. The injection was stopped. When seen by Koettnitz, several hours later, it was learned that the improvement had only been brief in duration,—about ten or fifteen minutes,—and then the former condition of coma recurred.

The death in this case certainly is not due to diabetic coma alone, as influenza in a severe form was prevalent at the time, and the patient was affected with violent headache, chills, and vomiting before Koettnitz was called to see her, and before she became comatose. The author considers the improvement which followed the injections very striking, in view of the fact that she was not seen as early nor watched as attentively as she would have been at a time when influenza was not prevalent.

SOLID SULPHURIC ACID.

We have just been shown a sample of a substance placed upon the market under the name of "sulphated salt," and which is stated to contain seventy-five per cent. of available sulphuric acid of 1.840 sp. gr. This salt, it is further said, can be used, when dissolved in water, for the majority of operations in which the ordinary sulphuric acid is employed. The chemical, if it should prove all that its manufacturers claim it to be, will put an end to the difficulties and dangers now attending shipping sulphuric acid. It is a solid substance, having the appearance of caustic soda, and is packed in iron drums, in the same manner as that substance. It is said to melt at 200° F., and to solidify again on

cooling, to be readily soluble in its own weight of water, and, in solution, to be reducible to any required strength. It is manufactured in England. — *Chemist and Druggist*, December 19, 1891.

THE TREATMENT OF BRIGHT'S DISEASE BY STRONTIUM.

In *Les Nouveaux Rèmedes* for December 8, 1891, is quite a long and very interesting paper by CONSTANTIN PAUL upon the treatment of Bright's disease with the salts of strontium. After detailing twelve cases in which he has employed it, he reaches the following conclusions, which confirm those which he made to the Academy of Medicine in the latter part of July, 1891 : He finds (1) that strontium is not toxic ; (2) that it is not a diuretic ; (3) that it rapidly diminishes the albuminuria of tubular or parenchymatous nephritis ; but that after the administration of the drug is stopped the albuminuria remains.

Under the following conditions he thinks that strontium is of value for the relief of albuminuria,—namely, in rheumatic parenchymatous nephritis, and in the parenchymatous nephritis of scrofula and gout. He has also found it serviceable in albuminuria of pregnant women and in those who have recently been delivered. It is, however, of little value in the albuminuria of syphilis, in infectious albuminuria, or in that due to cardiac disease. In interstitial nephritis and in the albuminuria of tuberculous cachexia it is without value. The diminution of the albumin in all cases is followed by a very noticeable amelioration of the other symptoms. If the salts of strontium are to be useful in albuminuria, it is necessary that they be employed before the period in which urinary insufficiency and uræmia develop. A condition of fever, or a high temperature, is contra-indicative of the employment of the lactate of strontium in parenchymatous nephritis.

ON THE DISCOVERY OF QUININE AND PHENACETIN IN THE URINE.

L'Orosi for September, 1891, contains a paper by SISTENI and CAMPANI detailing the results of a somewhat medico-legal search made by them in regard to the discovery of quinine or phenacetin, or their educts in the urine.

The urine which was tested was that passed within the twenty-four hours succeeding the ingestion of 2 grains of the hydrochlorate of quinine or an equal quantity of phenacetin. The following conclusions are reached : Phenacetin produces the fluorescence characteristic of quinine in solution. Chlorine-water and ammonia produce a yellow-violet color in aqueous solutions of phenacetin. Chlorine-water and ammonia produce a beautiful light-blue color in a mixture of quinine and phenacetin. This coloration is attributed to the combination of the two colors which have been just mentioned,—namely, the yellow-violet of the phenacetin and the green of the quinine. The fumes of bromine, with a few drops of ammonia, give the characteristic green color of the salts of quinine when mixed with phenacetin. If, however, the salts are used, this solution does not occur. Bromine fumes color dilute solutions of quinine yellow, and the same thing occurs with phenacetin. If the salts are concentrated, a yellow precipitate is formed, which disappears on the addition of ammonia, without giving the green color. For the development of the characteristic green color of quinine with bromine it is always preferable to employ this agent in the form of fumes, which are produced with the least trouble by adding ammonia-water drop by drop. In this manner the green color is produced by the presence of phenacetin, and finally becomes violet hue. After this solution is shaken with ether it forms two layers, the inferior or aqueous layer, having the green color of quinine, and a supernatant layer, which is essentially decomposing, the yellow violet of the phenacetin.

INTOXICATING RYE.

At a village in the department of the Dordogne, in France, the bread made from a sample of rye produced remarkable effects, not only in men, women, and children, but in animals of all kinds which partook of it. These effects were not the same as those produced by ergot, but more resembled alcoholic intoxication. Grains of the rye were subjected to a careful examination by M. PRILLIEUX, who found them infested by fungi and bacteria of various kinds. The pathogenic effects he believed to be produced by an undescribed species of fungus, the representative of a new genus, characterized by the production of spores within the cells. He names it *endoconidium temulentum*. — *Pharmaceutical Journal and Transactions*, December 12, 1891.

EMPLOYMENT OF HYDRASTININE IN UTERINE HEMORRHAGES.

DR. EMANUEL reports from Czempin's clinics, in Berlin, the results obtained from the use of hydrastinine in uterine hemorrhages. These results differ somewhat from those of Falk. The alkaloid was given by the mouth, and after hemorrhage appeared, not in anticipation of it and for the purpose of preventing it. Gelatin capsules, containing three-eighths of a grain of the hydrochlorate of hydrastinine, were given generally four times a day, the patients being instructed to stop taking them as the hemorrhage ceased. Generally eight capsules, but often only six, sufficed to stop the bleeding; in other cases twelve were required. When the latter number did not stop the bleeding, further administration of the remedy did not influence the loss of blood in any way.

Of the forty-eight cases in which Emanuel observed the action of the remedy, the cause of the hemorrhage in twelve was disease of the adnexa, and it was therefore secondary. In these twelve cases, the result in five was extremely prompt,—that is to say, the bleeding ceased in the first twenty-four to thirty-six hours. In three cases the result was not so good, the bleeding becoming visibly less, even ceasing entirely to return in a short time, or the intensity of the bleeding subsided slowly so that it ceased completely only after four or five days. In two cases the remedy had no effect, and twice the result on the second trial was only gradual cessation of the bleeding in the same patients in whom it had acted very promptly the first time.

In cases in which the hemorrhage arose from endometritis in its varied forms, the effect was negative in one case, in twelve cases a very prompt result was demonstrated, while in six cases, five of them being cases of fixed retroflexed uteri, a decided effect of the remedy upon the bleeding could be demonstrated, though a somewhat longer time was consumed before the bleeding ceased.

No result was obtained in four cases of hemorrhage from myoma of the uterus. Emanuel suggests the possibility that if continued for a longer time the hydrastinine might be successful.

In the remaining eleven cases the bleeding was the result of congestive conditions. In two, very profuse bleeding occurred at the first menstruations after confinement: here the remedy acted very well. In two cases of increased menstruation following abortion the result was negative, and in these ergot was of assistance. In five cases in which various congestive conditions were looked upon as causes of the bleeding, the result was very good in three, and in two, negative.

To sum up: Twenty-six of the forty-eight cases were so influenced by the remedy that the bleeding ceased in the succeeding twenty-four to thirty-six hours, a result which has not been obtained by other known remedies. Hydrastinine seems to act upon the small vessels of the mucosa, whereas ergot exerts its influence upon the smooth muscular fibre. Hence, the former does not take the place of ergot in post-partum hemorrhages or hemorrhage of abortion.

No disagreeable symptoms were observed by Emanuel from the employment of hydrastinine.—*Therapeutische Monatshefte*, December, 1891.

THREE CASES OF COCAINE-POISONING.

DR. A. LORENZ, of Hamburg, reports these cases in the *Centralblatt für Gynäkologie*, December 19, 1891:

In the first case, a woman, 24 years old, who had borne two children, and was in pretty good physical condition, received a hypodermic injection of one-third of a grain of cocaine in the vaginal portion of the cervix preliminary to curetting the uterus. Half a minute after the injection the patient complained of general coldness, and was extremely restless. She passed about nineteen ounces of urine only a short time after being catheterized. Soon the whole body twitched, but especially the hands and feet. The patient was no longer able to stand, but lay down, and again passed about seventeen ounces of urine. Symptoms of convulsions succeeded. The respiration was extremely frequent; the pulse 150, but regular. At times the breathing stopped in inspiration; the pupils were dilated; then appeared convulsive twitchings of the face and throat; the mouth was puckered, as if for whistling; the tongue was stretched out and immovable; swallowing was impossible; the sterno-mastoid was stretched tense; consciousness was lost.

Chloroform was given by inhalation, and effected the subsidence of the convulsive symptoms. The patient complained of great thirst and burning in the throat. She passed about thirteen ounces of urine. Strong coffee was then given, and she soon afterwards passed about nine and a half ounces of urine. After a pause of about five minutes the symptoms began again in the same manner. Amyl

nitrite markedly shortened the attack. The patient then passed about nine and a half ounces of urine every five minutes for half an hour. Burning in the throat and thirst persisted. A third attack was stopped at its beginning by amyl nitrite. The patient slept for half an hour, and then cried out, "It is coming again!" She only complained of some twitching in the arms and legs, and of some burning, thirst, and polyuria, which continued the following night. On the next day the patient was entirely well, except for polyuria, which persisted for four weeks.

The second case was in a woman, 25 years old, who had borne two children, and who was to be curetted for hemorrhagic endometritis. The operation had been done previously under anæsthesia. Without the patient's knowledge, one-sixth of a grain of cocaine was injected. Exactly half a minute later the patient, who had not felt the injection, and supposed Lorenz was busy with his preparations for the operation, became extremely restless, and complained of coldness and twitching of the whole body, and began to weep aloud. Other symptoms were much as in the first case. After she had received a cup of strong coffee, the attack passed over. The operation was then completed without special pain. For two days she passed a larger quantity of urine than usual.

In the third case the patient was a woman, 29 years old, who had been married nine years, and was sterile. To perform the operation of discission, as dilatation of the cervix had had no result, Lorenz injected for experiment one-eighth of a grain of cocaine. The symptoms were about the same as in the second case, only less pronounced, so that the operation was not interrupted. This patient also passed an increased quantity of urine for two days. Sensibility apparently was not lessened.

HYDRIATIC AND MECHANICAL THERAPEUTICS OF HEART-DISEASE.

Dr. Otto Pospischil, assistant to Professor Winternitz, of Vienna, reports some desperate cases of heart-disease to show the results of treating heart-disease by washings with water and by mechanical methods.

The first patient referred to was a man, 62 years old, of athletic frame, who became, in the second half of his life, addicted to the greatest excesses in the way of eating and drinking. The heart became fatty, but insufficiency first developed following a stormy sea-voyage in 1885. He then had palpitation, general discomfort, a feeling of weakness, and especially dyspnœa. He underwent Oertel's treatment too vigorously, and lost about thirty-eight pounds in fourteen days. He became, however, exceedingly nervous and irritable, and was still short of breath. Residence in the country, in the Alps, lasting, with interruptions, for many months, effected only slight changes in his condition. He became better and worse again; but, on the whole, lost ground for several years following. As soon as his strength became measurably restored, he would resume his imprudent habits of eating and drinking. He had several slight apoplectiform attacks. When induced to go to Winternitz's Institute, in Kaltenleutgeben, he suffered with orthopnœa, Cheyne-Stokes breathing, stases in all the organs, bloody sputa, chronic endocarditis, endarteritis, and nephritis.

Passive movements only could be borne at first. These promoted increased absorption from the veins and lymphatics. Passive movements of the hand, elbow, and shoulder-joint, then in the ankle-, knee-, and hip-joints, combined with bending and stroking, pronation and supination, adduction and abduction, and, finally, the rotatory movements, were employed first. They did not injure the patient nor increase his cyanosis and dyspnœa. After a few days, kneading of the muscles of the extremities, with centripetal stroking, could be added also. When it was found that these procedures, when employed twice daily for half an hour, neither accelerated the heart, nor made the patient restless, but rather increased his comfort, kneading of the muscles of the chest and back was begun.

Before a month had passed, the patient had made such progress that percussion, in the form of *tapotement* of the breast, and "chaffing" of the back, in order to effect the activity of the heart-muscle, could be tried. The latter is especially valuable in diminishing the frequency of the pulse, in Graves's disease, for example. Pulse-tracings taken in Pospischil's case show that, after the "chaffing" movements in the back, the heart beat with greater strength and regularity. A pulse of 180 and over before the chaffing movements fell to 88 afterwards, and had not attained its previous frequency an hour afterwards. Two weeks later active movements were begun.

It is true that such movements accelerate the heart, but they also promote tissue-change, absorption, and nutrition. The active movements at first were very slight,

and consisted in resistance on the part of the patient to movements made by the *masseur*. On account of the cyanosis and dyspnœa which existed, the patient was induced to draw deep breaths. After two months, the patient, who for months had been unable to leave his room, could take a dozen steps in the open air. This power was daily increased, until, at the end of six weeks more, he could walk twice daily for fifteen minutes without dyspnœa, palpitation, or oppression. Best of all, the patient was content with his condition, and had every reason to be. He could take short walks without great disturbance or danger of weariness, could lie down, and could speak for a longer time than before. More could have been achieved but for the patient's unconquerable aversion to having his diet and drinking regulated.

The employment of baths and douches were contraindicated by the patient's condition. Simple washing was resorted to, with excellent results. A belt to further the activity of the intestines was worn at night for three or four hours, and completed the hydriatic part of the treatment.

The patient's steady progress was interrupted by an apoplectiform attack, which was not accompanied by loss of consciousness and did not leave behind any decided disturbance of speech. There was, however, paresis of the left half of the body. The patient was in bed during the last two weeks of his stay in the institute. The same measures produced excellent results at this time also, the symptoms of paresis subsiding in the course of the first ten days. Pulse-tracings taken before and after the washings indicate that the heart was strengthened by them.

THERAPEUTICS OF ABORTION.

RUDOLPH KUPPENHEIM, assistant in the clinic for women of the University of Heidelberg, remarks upon the difference in teaching and practice of physicians regarding the treatment of membranes retained after abortion. If fever, or a stinking discharge from the genitalia, set in after abortion, every gynæcologist is agreed that the uterus should be emptied manually or instrumentally of its decomposed contents, and its cavity disinfected, provided that no inflammatory processes in the adnexa exist. If the matters left behind after abortion are detected by the menorrhagia, the condition is different. Here some will expect nature to get rid of the membranes, while others will think that artificial aid must be invoked. If signs of profound anæmia occur, some regard this as requiring tamponing, for the most part only in the vagina; while others, more modern in their methods, regard the conditions as indicating that the uterus should be emptied and the patient preserved from further loss of blood. But if after abortion neither fever, putrid lochia, nor bleeding occurs immediately, Winckel recommends to delay removal of the membranes until one of the symptoms named appears. Schröder, Olshausen, Fritsch, Veit, and others, on the contrary, lay great weight upon the complete removal of the egg, and especially of the whole decidua. The attitude of the practitioner in the great majority of cases is an expectant one.

Kuffenheim analyzes eighty-four cases of incomplete abortion, for the purpose of contributing to a solution of the question of treatment.

Of the eighty-four cases, fifty-eight occurred in the second and third months, twelve in the fourth, and fourteen in the fifth and sixth months of pregnancy. The general treatment consisted, first, in emptying the uterus with the finger, which, in a part of the cases, however, was not possible, owing to the narrowness of the cervical canal. Then, in most of the cases, the uterus was curetted,—in forty of the fifty-eight cases of abortion, at the second and third months; in six of the twelve, at the fourth month; and in six of the fourteen occurring at the fifth and sixth months.

In giving the course of the cases he first mentions seven cases in which the temperature rose to 100.2° or 102.1°, owing to the patients having risen too soon, or to dietetic imprudences. These seven patients and seventy others left their beds on the ninth day after an entirely normal course.

In seven cases there was more or less serious disease. One woman after abortion at the third month had several times slight bleeding, which ceased after the exhibition of ergot. A second patient, also in the third month, had for eight days rises of temperature to 101°, without there being a recognizable focus of disease. In both of these the uterus had been emptied with the finger only. Another patient had a temperature for three days of 100.2° to 102.1°; in this patient the remains of decidua were removed manually and with the curette after an abortion at the third month. In a fourth case the result was unfortunate. A woman aborted

at the second month, and, on account of hemorrhage, the physician in attendance tamponed the vagina without preliminary disinfection. Four days subsequently, she entered the polyclinic with a temperature of 103.2° and a pulse of 144. The uterus was cleaned out with the finger and curette, and washed out with corrosive sublimate solution. The temperature did not fall, and the patient died six days later of acute sepsis. One of the twelve patients who aborted in the fourth month came under treatment with fever, the temperature being 103.1°. The remains of the decidua were removed manually and with the curette, and the cavity of the uterus cauterized with ninety per cent. carbolic acid. The temperature then fell, and from the second day on remained normal. On the ninth day the woman, who had left her bed on the sixth day, was seized again with chill and high fever (104°), and an exudate occurred in Douglass's pouch, which was absorbed in four weeks with the aid of sitz-baths and hot vaginal douches.

Of two patients who aborted at the fifth month, one entered the polyclinic. The membranes had been ruptured four days, and the fœtus, which was putrid, was easily extracted by the feet. The adherent placenta was removed by the hand, and the uterine cavity washed out with corrosive sublimate solution. Fever lasted eight days, with putrid lochia. In the second case, there was central placenta prævia. In the course of three days vaginal tampons were necessary several times, and on the third day the placenta was pierced, a foot seized, and the fœtus delivered several hours later. Membranes and placenta were adherent, and fragments of them had to be removed finally with polypus forceps and curette. On the second day after delivery a high fever set in, with bilateral parametritis; the abscesses were opened, and cure resulted after four months' illness.

Before digital emptying of the uterus was attempted, the vagina, and, if possible, the uterus also, was washed out with a three per cent. carbolic acid, or a twenty-five per cent. sublimate solution. After the operation, vagina and uterus were washed out. Curetting was principally confined to abortions at the second or third month, and at a later period, when the finger could not with certainty effect the complete removal of the decidua, curetting was always done in the Sims position, after careful disinfection, without anæsthesia, and with Récamier's curette. This operation appeared to have no effect upon subsequent conceptions.—*Deutsche Med. Wochenschrift*, December 31, 1891.

TREATMENT OF SHOCK.

CHAUVEL recommends the following treatment of shock, according to *La Médecine Hypodermique* for January, 1892: For the purpose of re-establishing the circulation, the patient is put in an absolutely horizontal position and massaged. He is also given alcoholic frictions and subcutaneous injections of ether. For the purpose of maintaining the bodily temperature, the air of the room is well heated, and the patient is surrounded by hot bottles, or placed in a bath of the temperature of 105° or 110°.

Internally, Chauvel administers alcoholic stimulants, such as rum or brandy, in the dose of from 1 to 2 ounces. He does not employ sinapisms or other inconvenient measures. When reaction has been obtained, the stimulants are combined with opium for the production of sleep. Chauvel mentions the intravenous injection of ammonia, as has been used by Penfold and Tibbis. In cases where shock is prolonged, strychnine, digitalis, and belladonna are to be employed, and electricity may be of great service.

APPLICATION FOR RHEUMATISM.

HEBBING is said to employ the following solution locally in the treatment of rheumatism:

℞ Salol,
Sulphuric ether, aa ʒi;
Collodion, ℥i.

To be applied around the joints which are affected by acute rheumatism.

—*L'Union Médicale.*

THE TREATMENT OF MITRAL INSUFFICIENCY.

In the *Revue de Thérapeutique Générale et Thermale* for February 5, 1892, DIEULAFOY gives his opinions concerning the treatment of mitral regurgitation.

He divides the cardiac medicaments into cardiac tonics, such as strophanthus, strophantine, and sparteine; cardiac tonics and diuretics, as digitalis, digitaline, convallaria, and convallamarine; and as pure diuretics he classes caffeine, theobromine, the salts of potassium, lactose, and milk. Respiratory affections are treated by the iodides of potassium, sodium,

and morphine. In those cases which suffer from dyspnœa, peripheral œdema, and general anasarca, with effusions into the pleura, the pericardium, or the peritoneum, and which show evidences of imperfect asystole, it is evident that the drugs classed under the cardiac tonics and diuretics are useful. At the head of these medicaments he places milk, one of the best diuretics, which may be given hot or cold, raw or boiled, according to the preferences of the patient and the form which is best tolerated by him. It should be given at regular intervals of every half-hour to an hour in small quantities, and its digestibility is largely increased by the addition of soda-water or Vichy water. In cases where intolerance to the milk of the cow occurs, recourse may be had to the milk of the goat. He commences with from one quart to one and a half quarts a day, as the proper quantity.

For the so-called diuretic treatment of the case, Dieulafoy adopts systematic medication, giving remedies which will increase diuresis, such as sugar of milk, in the dose of from 1 to 3 ounces in water each day. The solution is prepared in the following manner: The lactose is to be dissolved in a small quantity of hot water, and then is to be poured into a diuretic mineral-water in large quantity. In persons who are suffering with gout, the efficacy of the remedy, and its agreeableness may be increased by adding a few drops of lemon-juice or two or three teaspoonfuls of champagne. A glass of milk and a glass of lactose solution is administered every hour or two. For the purpose of increasing diuresis and of stimulating the heart, Dieulafoy prefers the so-called diuretic wine of Trousseau, which he regards as an admirable remedy in cases of asystole with dropsy, which contains the following ingredients:

℞ White wine, Oviii;
Alcohol, Oi;
Juniper-berries, ℥xii;
Acetate of potassium, ℥viii;
Digitalis, ℥ii;
Squills, ℥i.

Sig.—A dessertspoonful of this contains the proper dose of each of the constituents, and is a very effective diuretic.

As much as six drachms of this wine may be given in twenty-four hours, either with or without the administration during the same period of the lactose solution. The increase in the quantity of urine under these circumstances is quite extraordinary, there being a decrease in the œdema all over the body, and absorption of the liquid from the pleural and peritoneal cavities at the same time there is a decrease in the oppression and insomnia, and the liver returns to its normal size. Frequently also the cardiac arhythmia entirely disappears, and the murmur is decreased in volume. Where there is lack of systolic contraction, without dropsy, Dieulafoy administers the cardiac tonics alone, such as sparteine and strophanthus, in this way influencing the kidney more indirectly. Frequently there is a very great increase in diuresis after the first few days, and should the stomach become irritable, resort may be had to the mixture of lactose and the diuretic wine already named, or, in other cases, which are more difficult, rectal injections of from two to four ounces of water and milk, one to three drachms of lactose, and half to one drachm of the diuretic wine may be injected several times a day into the rectum. Under these circumstances the patient absorbs a sufficient quantity of the different medicaments to be distinctly impressed with their action. After giving the stomach a rest in this way, tolerance will frequently be re-established. If, on the fourth and fifth day, a sensible amelioration has not been produced, and there is an outpouring of liquid into the cavities of the body, paracentesis should be resorted to, and if marked œdema of the genital organs is present, with spots showing that pressure is harming the skin, the parts are to be tapped in order to avoid lymphangitis and sphacelus. Before these parts are tapped, however, the physician should always relieve himself of the responsibility by informing the family of the patient of the possible accidents which may ensue through his interference with this urgent symptom. Under these circumstances the best way to get relief from the pressure of the liquid without provoking an accident is to freely cauterize the œdematous parts, and at the same time to institute medication tending to support the system.

Should favorable symptoms follow the treatment of the case, the rest of the therapeusis should consist of dietetic and medical treatment, and in the continuation of the prolonged milk diet and the avoidance of alcohol. The medical treatment consists of the administration at intervals of the lactose and in the application of revulsives, or the application of severe counter-irritants to the thorax, and in the avoidance of anything which will interfere with compensatory hypertrophy. Should the patient, who is suffering from

mitral disease with marked asystole, suffer from dyspnœa, from nocturnal shortness of breath, and if there be no dropsy to account for the interference with respiration, the best antidyspnœic remedies will be found to be morphine and the iodides, chiefly in the form of the iodide of potassium. Under these circumstances marked relief generally follows, particularly if the morphine be given in very small doses frequently through the twenty-four hours. If, however, cardiac asthma is present, pyridine and oxygen should be inhaled, and the morphine-and-iodine treatment fully pushed. Here it is absolutely necessary to preserve the strength of the cardiac muscle and to prevent degeneration. The administration of the sugar of milk and of milk itself should be begun at once at the first evidence of œdema. Should the symptoms be largely hepatic, as shown by an enlarged liver, icteroid discoloration without anasarca, and without undue abnormality in the lung and kidney, but with hepatic congestion, the heart is to be stimulated by the use of digitalis in small doses, and the patient is to be placed upon the milk-and-lactose diet for three days. After this the digitalis should be suspended for five days, and then given for three days. This generally causes a rapid diminution in the size of the liver.

Finally, in mitral disease, it is by no means an uncommon accident for the patient to be attacked by cardiac palpitation, by the subcrepitant râles indicating pulmonary œdema, and by cardiac failure. Under these circumstances the physician is not to remain inactive, but to remember that the malady must be strongly combated, and Dieulafoy considers that the application of the counter-irritation to the region of the heart is of great value. Tonic treatment other than that already mentioned in the way of cardiac tonics should consist in the administration of quinine. All circumstances that would tend to produce mental or nervous disturbance are to be avoided, and emotions are to be governed lest they run riot. For these reasons a person suffering from cardiac lesions should be forbidden to follow such occupations as politics or that of a stock broker, and the patient should be warned that tobacco and alcoholic drinks are injurious.

METHYLENE BLUE IN MALARIA.

In *Languedoc Medical* for February 5, 1892, LAVERAN makes a report upon the treatment of malarial poisoning by methylene blue, as proposed by Guttmann and Ehrlich, who have stated that it is possible to cure such patients by the administration of four to six grains a day.

Laveran injected the blue underneath the skin into the breast of pigeons, in the dose of ⅓ of a grain, in cases where the blood of the birds showed the hematozoön. Notwithstanding the fact that the color was seen in the blood, no effect was exercised upon the parasites.

To two patients who were suffering from malarial disease, Laveran also gave the drug, in the dose of 4 to 6 grains a day, until they had taken about two drachms of the drug, without producing any effect on the malarial organism.

As a result of his experiments, Laveran reaches the conclusion that methyl blue is utterly without effect, and that it simply serves to color the urine blue.

INJECTIONS FOR CHRONIC CYSTITIS.

ULTZMANN recommends the following prescriptions in the treatment of this troublesome condition :

Crystallized carbolic acid, gr. xv;
Distilled water, ℥iiiss.

Dissolve, and mix with equal parts of hot water at the moment that the liquid is to be injected.

Or the following :

Boric acid, ℥ss;
Glycerin, ℥i;
Distilled water, ℥x.

Make a solution, and mix with equal parts of warm water at the moment of employment.

Either one of these solutions when warm may be used for washing out the bladder in cases of chronic cystitis. When the vesical secretion is catarrhal and has a bad odor, the following injection is useful :

℞ Nitrite of amyl, gtt. v;
Distilled water, ℥iv.

Mix, and add a tablespoonful of this solution in the proper quantity of water for a vesical injection.

—*L'Union Médicale*, No. 12, 1892.

FORMULA FOR INFANTILE SYPHILIS.

L'Union Médicale, No. 4, 1892, gives the following prescription in cases of syphilis complicated with anæmia :

℞ Protiodide of mercury, gr. iii;
Lactate of iron, gr. viii;
Powdered sugar, ʒii.

To be made into ten powders, one of which is given three times a day.

This prescription is particularly designed for the treatment of infantile syphilis.

INTERNAL USES OF CHLOROFORM.

In an article entitled "The Medicinal Employment of Anæsthetics," in *L'Union Médicale*, No. 4, 1892, after calling attention to the fact that chloroform-water is a very valuable remedy in cases of gastralgia, with dilatation of the stomach, in the dose of a small teaspoonful every half hour or hour, attention is called to its value in the treatment of nervous vomiting and of the vomiting of pregnancy. Attention is also called to the fact that Bianchi has found that an aqueous solution of chloroform, in the strength of two per cent. is a useful liquid for the purposes of lavage. It is an analgesic and a moderator of reflex irritability.

Dujardin-Beaumetz has also found that in cases of lithiasis, suffering from gastric pain, chloroform in the following formula is very serviceable.

℞ Saturated chloroform-water, ʒii;
Syrup of orange, ʒi;
Simple syrup, ʒi.

Sig.—A dessertspoonful every fifteen minutes until the pain is relieved.

It has also been found that chloroform is equally efficacious with ether for the removal of gall-stones occurring in gouty persons.

Ulbrecht recommends that chloroform, in the proportion of 1 to 10, shall be used for the purpose of stopping hemorrhage after extraction of teeth.

The drug is also useful in cases of parasitic painful growths of the mouth, such as the various forms of stomatitis.

Employed in false croup, chloroform, in the proportion of 1 to 10 drops in an ounce of water, to which is added a little glycerin, is very useful when given internally, in the dose of a teaspoonful every half-hour. If there is dyspnœa through the day a teaspoonful may be given every two hours and at night every hour.

A very useful employment of chloroform is in cholera infantum in the following prescription:

℞ Syrup of ginger, ʒi;
Chloroform, gtt. iii to iv;
Tincture of opium, gtt. x to xv.
Sig.—A teaspoonful every hour.

In ulcer of the stomach, small doses of chloroform given internally will often remove the pain and stop vomiting, and chloroform-water has also been found useful as a gargle in septic sore throat.

Steep has treated eighteen cases of typhoid fever by the internal administration of chloroform, in the dose of 15 minims in 10 ounces of water, given three times a day during the attack; at the same time quinine is employed. It is stated that this medication causes a rapid decrease in the fever, and that no disagreeable secondary effects are observed.

Roger has used 3 to 6 drops of chloroform, in syrup or mucilage, in the treatment of whooping-cough, with very good results, and in some instances the nervous excitability of delirium tremens can be much quieted by its internal administration. The following prescription is said to have been authorized by Da Costa:

℞ Chloroform, ʒi;
Compound tincture of cardamom, ʒi;
Syrup of acacia, ʒi;
Simple elixir, ʒii.

Sig.—A teaspoonful every half-hour until relief is obtained.

Miller and Griggs are said to have reached very good results in the albuminuria and anasarca of pregnancy by giving chloroform, in 12- to 20-drop doses in sweetened water, causing thereby a diminution in the albuminuria and the disappearance of the anasarca. This treatment is also said to have prevented the development of eclampsia.

In the treatment of tape-worm, Kaiser has used the following mixture:

℞ Croton oil, ♏i;
Chloroform, ♏ii;
Castor oil, ʒi.

Professional opinion seems to be considerably against the employment of chloroform hypodermically, as after injection of large doses in the lower animals it has been found to create grave renal lesions with degeneration of the muscular fibres of the heart. In man, when it has been employed in the treatment of neuralgia in this manner, it has produced in a number of cases severe pain and profound alterations in the cellular tissues.

In other cases, however, very good results have followed the treatment of neuralgia by injection of from 5 to 10 minims of chloroform into the part affected, although marked œdema and swelling of the part has followed the injection.

TOXIC ACTION OF IMPURE CHLOROFORM.

Pictet's new method of refining chloroform, and the results reached by him and those who have experimented with his product are of interest.

In the *British Medical Journal* of January 30, 1893, RENÉ DU BOIS-REYMOND, a son of the celebrated professor of the University of Berlin, contributes an article, giving the results of his study in regard to the influence of pure and impure chloroform upon animals.

After pointing out the fact that physicians are very careless in employing chloroform, failing in the majority of instances to even ask whether what they obtain from the drug-store has gone through processes which would render it pure, he next speaks of the fact that Sédillot and Lucas-Championnière have shown by clinical evidence that one of the chief dangers of chloroform is its impurity. He then goes on to sum up the results of his experiments, as follows:

Regarding the experiments on the action of chloroform in general, it is found that they corroborate previous observations in regard to the influence of the drug. That is to say, the blood-pressure appears to be gradually and uniformly lowered from the beginning, but not very greatly until the respiration is affected. For some time after respiration has ceased the heart continues to beat, the pulse remains upon the whole below normal, but may rise above it for a period. In regard to the difference between the physiological action of pure chloroform, as opposed to that of an impure residue, he finds that no difference occurs in the shape of the pulse-waves nor in the frequency of respiration, the former being equally affected by both drugs, the latter varying freely.

The pulse-rate of nineteen cases was higher at the close of the experiment when the residue was used than when the pure chloroform was employed.

The blood-pressure in by far the greater number of experiments at the moment respiration stops is higher after inhalation of pure chloroform than after inhalation of the impure residue.

The residue causes stoppage of respiration much more quickly than does pure chloroform. The boiling-point of pure chloroform, according to Du Bois-Reymond, is 60° C., while that of the residue is 150° C.

The samples which were employed by Du Bois-Reymond did not boil under 87°, and it is evident, therefore, that the vapor tension of the residue is less than that of chloroform. In other words, that the residue is far less volatile. In the event of the chloroform being impure, it is evident that the quantity of chloroform inhaled at each breath must be much larger than the quantity of the residue inhaled. If both drugs, therefore, killed at the same time, there would still be evidence that the death was due to pure chloroform.

In drawing conclusions from these results in regard to the practical use of chloroform, the following facts should be borne in mind:

Raw material from which Pictet's chloroform is prepared is originally chloroform of superior quality and pure, according to the Pharmacopœia Germanica. The impurities accordingly are present even in chloroform which is supposed to be unobjectionable, although, of course, they are in an extremely diluted state. It would seem that substances which are noxious only when concentrated could not possess very much influence when diluted in proportion greater than 1 to 1000; but this is quite a mistake, for dilution with so powerful an agent as chloroform does not weaken, but, in fact, assists toxic effects by lessening the power of the organism.

Finally, Du Bois-Reymond points out that in addition to the rules so frequently laid down for the administration of chloroform, the following should be added,—viz., that the quality of chloroform be carefully examined, and that only the very best procurable be employed.

ACTION OF THE BROMIDES.

FÉRÉ, before the Société de Biologie at its meeting on September 17, 1891, expressed his belief that the results obtained by using bromide of strontium, instead of bromide of potassium, in treating epilepsy, are equally good, particularly after the potassium salt has been taken for some time, although the same doses are employed as of the potassium salt.

In regard to the assertion that persons taking the bromides rarely become tuberculous, Féré finds from experiments on guinea-pigs and rabbits that the administration of those compounds to animals who were inoculated with tuberculosis distinctly increased the progress towards a fatal issue.—*Revue Thérapeutique Médico-Chirurgicale*, November 1, 1891.

THE ADMINISTRATION OF BROMOFORM.

PROFESSOR BEDFORD, of New York, states that he has recently had brought to his attention a formula for the prescription of bromoform, which is very faulty, in that the drug is precipitated, and forms a globule at the bottom of the bottle, so that, as a result, the patient receives nearly all of the bromoform with the last dose with unfortunate results.

He recommends that it should be given in the following prescription:

℞ Bromoform, ♏xvi;
Alcohol, fʒii;
Glycerin, fʒxii;
Tincture cardamomi comp., fʒii.

If mixed in the above way, a perfect solution is formed, which is pleasant to the taste, and yet each fluidrachm contains one minim of bromoform. Syrup of water should not be added to the prescription, but glycerin may be added in any quantity without precipitation. A drop of this mixture may, however, be added to water at the time the dose is taken, it being carefully mixed before being swallowed.

THE TREATMENT OF SUPPURATING INGUINAL GLANDS.

The surgeon frequently meets with cases of chronic suppurating glands, with one or more sinuses, which cause but little pain and inconvenience, yet have no tendency to heal save with perfect rest on the one hand, or with the more vigorous measures about to be described on the other.

The condition referred to is one occurring as a sequel to an excoriation of the lower extremity, a strain of the structures of the groin, or suppuration, without any definite history or objective sign indicating the cause. It is far from uncommon to find in surgical practice, say, a young woman, with absence of venereal sore, excoriation, discharge, or sign of injury, complaining of painful and swollen, perhaps suppurating, glands of one groin, and this, too, without evidence of struma or anæmia. In a large percentage of cases, without any assignable cause, simple adenitis makes its appearance in connection with the glands running parallel with Poupart's ligament. The inflammation seldom ends in resolution, because the patient fails to recognize the importance of rest; thus suppuration ensues, and if the abscess discharge spontaneously, or if it be incised, a sinus remains, leading to a gland, and this passage is found to burrow both superficially and deeply. In these simple non-specific cases the granulations are doughy, velvety, anæmic, and easily separable. The pus undermines the skin with purple discoloration; the integuments are thinned, and the healing process is tedious in the extreme. The destruction involves the tissue around the glands rather than the glands themselves.

In a late experience of ten cases (males three, females seven), in which chronic indolent sinuses existed, an anæsthetic was administered, and free scraping with Volkmann's sharp spoon performed, as well as the removal of the glands and sloughing adenoid tissue. The surface is first cleansed, and rendered as far as possible aseptic. In practice it is not found necessary to divide bridges of tissue between neighboring sinuses, so long as the under surfaces of these are carefully scraped. The spoon is freely applied to all parts covered by granulations, and a smaller-sized instrument passed along the canals leading deeply. All exposed glands are torn away or twisted from their attachments and the bed on which they lie scraped. The cavity is washed out with a solution of chloride of zinc (gr. xx to ʒi), a thick pad of antiseptic gauze is applied, and firm pressure maintained by means of a spica bandage. As a precautionary measure, and in the more extensive operations, in order to avoid movement an outside bracket splint is used.

Cases of chronic suppurating adenitis, which have existed from two to four months, have, by the above-mentioned treatment, rapidly healed. A surface capable of throwing out healthy granulations is produced. The removal of the morbid tissue, which probably acts more or less as a foreign body, expedites the healing process. The coaptation of surfaces induced by pressure causes the permanent union of the parts concerned.

The benefit derived by the removal of supporting cervical glands, as advocated by Mr. Teale, Mr. Treves, and others, is thus secured by a similar operation in other regions. As contrasted with the neck, in the groin we have to deal with tissues which are less firm, and pus is more disposed to burrow; hence the importance of renovating, so to speak, the undermined integuments. By this means a simple and efficacious remedy has been found for the long-lasting misery experienced by those afflicted with suppurating adenitis.—*Practitioner*, p. 406, December, 1891.

SULPHATE OF CINCHONIDINE IN THE TREATMENT OF VARIOUS TYPES OF MALARIAL POISONING.

In the *Bulletin Général de Thérapeutique* for December 30, 1891, there appears a paper upon the above subject, the author being GEMAYEL.

After detailing a number of cases in which he employed this alkaloid of cinchona in preference to quinine, he reaches the conclusion that cinchonidine is equal in rapidity of action and efficiency to quinine, if not superior to it, producing in all the cases to which he has given it brilliant results. He has found it particularly useful and advantageous in those fevers which have resisted quinine. Neither does he believe it to have the contraindications which often exist against the use of the older alkaloids. He orders one and a half drachms of sulphate of cinchonidine, divided into four powders, and that one of these shall be taken the first, second, fourth, and the sixth day. On the third and fifth day the treatment is suspended. In the course of the following week the same treatment is repeated. By this means he endeavors to prevent a return of the disease, which, of course, is very important. The time which is best for the administration of the drug is just before going to bed. In this way the inconvenience of buzzing in the ears or other disagreeable symptoms, such as nausea, are escaped. However, if the attacks are severe, it is well to give the cinchonidine at other times. It is hardly necessary to add that arsenic, iron, and hydrotherapy are useful adjuncts to cinchonidine in the treatment of chronic malaria.

THE USE OF LACTIC ACID IN THE PROPHYLAXIS OF GOUT.

BERENGER-FERAUD, in the *Bulletin Général de Thérapeutique* for December 30, 1891, contributes a short article on a method of treatment suggested to him by Dr. Foucaut, of Orleans, concerning the use of lactic acid as a prophylactic in attacks of gout. The patient is given 30 grains of lactic acid a day for three weeks or a month, with the result that the attacks are further apart and are much diminished in intensity. The exact mode in which the drug is given is as follows:

The patient is provided with ten drachms of lactic acid, to which is added an equal quantity of water. In this manner half a teaspoonful represents thirty grains of the drug. In the morning the patient takes half to one teaspoonful of the solution with two, three, or four glasses of water. At the end of two or three weeks the employment of the drug is stopped for ten or eleven days, and then begun again in the same manner. This method is continued during several months, or even for years.

Feraud states that he has found lactic acid to be an inoffensive medicament, not interfering in any way with nutrition or the digestive functions. He believes that it is a valuable remedy, which will be placed high in the list of drugs which possess distinct antilithæmic power.

THE TREATMENT OF TRACHOMA BY THE EXPRESSION OF THE MORBID SUBSTANCE WITH A ROLLER FORCEPS.

KNAPP (*Archives of Ophthalmology*, January, 1892) bases his paper on one hundred and fourteen successive cases in which he has used an instrument of his own device, now generally known as the roller forceps, and constructed as follows: The branches of an ordinary, rather strong forceps divide at their ends like a horseshoe, the free space of which is closed by a creased steel cylinder, which rolls on pivots in sockets. The ends of the forceps thus resemble a stirrup.

The mode of application is as follows; The patient is etherized, except in mild cases of superficial granular deposition, in which cocaine anæsthesia penetrates deeply enough to perform the operation without pain. The upper lid is everted, seized at the convex border of the tarsus with ordinary fixing forceps, and drawn off the eye so as to expose the whole palpebro-bulbar conjunctiva. The infiltrated part is then—or it is not—superficially scarified with a three-bladed scalpel. One blade of the forceps is pushed deeply between the ocular and palpebral conjunctiva, the other applied to the everted surface of the tarsus; the forceps are compressed with more or less force, drawn forward, and the infiltrated, soft substances squeezed out as the cylinders roll over the surfaces of the fold held between them. This manœuvre is repeated all over the conjunctiva until the granules and the juice are completely pressed out of the tissue. The forceps pass two or three times over the same place until the absence of resistance proves that all foreign tissue is removed. The lower lid is treated in the same way, only it is not necessary to use the fixing forceps. An assistant everts the lid by drawing it down. There is in most

cases moderate bleeding during the operation. Afterwards the mucous membrane is washed with ordinary water, or a mild antiseptic, boric acid solution, two per cent., or bichloride of mercury, 1 to 5000. No bandage is applied.

Dr. Knapp considers his cases under five heads: 1. Follicular catarrh, sixteen cases. Fifteen were cured; one had a fresh outbreak of granulations soon after the squeezing. 2. Follicular trachoma, sixty-four cases. Of the sixty-four cases, fifty-four were cured, and the records of most of them go over periods of from three to nine months. In eight no records of the recovery were made, but there is little doubt that they were cured. One case was squeezed a second time; another subsequently underwent the operation of "grattage"; and another did well for months, but lately had a fresh attack. 3. Diffuse trachoma, twenty-two cases. Seventeen were cured, three did not report after the operation, one had a relapse, and another, six months later, had an attack of acute conjunctivitis, but without granulations. 4. Cicatricial trachoma, ten cases. Seven were cured, as far as these cases can be cured,—that is, with smooth, more or less shrunken conjunctivæ, and frequently corneal opacities, but no irritative symptoms.

Dr. Knapp does not consider that antiseptics are a condition *sine qua non* in the cure of trachoma.

EUROPHEN AND CANTHARIDATE OF SODIUM IN OPHTHALMOLOGY.

Europhen is obtained from the action of iodine on isobuthyl-orthocresol in alkaline solution. Its physiological action is apparently similar to that of iodoform, and like iodoform and aristol, it is active only when applied to moist surfaces which are able to withdraw from the remedy a certain amount of iodine in a free state. A salve of five to ten per cent. is irritating; hence a dose under two per cent. is recommended.

Juan Santos Fernandez (*Archives of Ophthalmology*, January, 1892) has been experimenting with this drug, and has confirmed a number of reports previously made in regard to it. He has tried it on inflamed conjunctivas and corneas, using a salve of from one-half to one per cent. The application is less painful than iodol. Eight cases are reported, comprising conjunctivitis, keratitis, and accidental and surgical traumatisms, and in all of them improvement followed the use of the drug, in one case where other well-known remedies had failed. So far as Fernandez's observations go, it is proper to say that europhen is useful in some (not serious) diseases of the eyes, where other antiseptics are also efficient.

This author has tried cantharidate of sodium in six patients with granular lids, who at first moderately improved, but afterwards remained as they were before the use of the drug. The treatment is painful.

JEQUIRITY A PERFECTLY SAFE REMEDY.

Under the above title Dr. Charles E. Michel (*Archives of Ophthalmology*, January, 1892) contributes a brief paper, in which he suggests that jequirity has been neglected. His own experience with the drug has been very favorable. He never has had accidents, and believes that accidents would never occur if the drug were properly prepared. He prepares a four per cent. solution by maceration of the bean in cold water, allowing it to stand twenty-four hours in a cold place, and then decanting until a semi-milky fluid is obtained. This infusion will retain efficient properties from four to six days. When about to employ the drug, he advises the infusion to be well shaken, and then a single drop to be instilled, allowing it to flow freely over the globe, and to the inferior and superior cul-de-sacs, for about thirty seconds. Often in twenty-four hours there is the characteristic jequirity inflammation. If, however, there is only free lachrymation and insufficient reaction, the instillation should be repeated. A third application of the same kind is made if more reaction is required. If this fails, the lids may be everted, and the conjunctival surfaces rubbed with a piece of cloth which has been dipped freely into the infusion.

ARTIFICIAL RIPENING OF CATARACT.

Antonelli (abstract *Revue Générale d'Ophthalmologie*, December, 1891), after a lengthy historical and critical review of the operation for ripening cataract, advises puncture of the capsule in young subjects (up to the thirtieth year), and Foerster's method in adults. He disapproves of discission, at least unless it is performed in very young subjects.

THE TREATMENT OF DETACHMENT OF THE RETINA.

GALTIER (*Annales d'Oculistique*, December, 1891) recommends the following treatment in detachment of the retina: Rest in bed in the prone position; the instillation of two drops three times a day of a collyrium of hydrochlorate of pilocarpine (.10 centigrammes to 10 grammes); a pressure bandage; dry fomentations; and a milk diet. He considers that the dry fomentations have a derivative and sudorific action preferable to the hypodermic injections of pilocarpine. He dwells particularly upon the use of milk diet, in conjunction with the other measures, because he regards this as a rational form of treatment depending upon the diuretic properties which he ascribes to milk.

KERATO-CONJUNCTIVITIS OF NASO-PHARYNGEAL ORIGIN.

COUÉTOUX (*Annales d'Oculistique*, December, 1891), in an elaborate paper containing a number of illustrative cases, points out that affections attacking the conjunctival covering of the cornea—phlyctenular conjunctivitis, kerato-conjunctivitis, vernal conjunctivitis—are almost always of naso-pharyngeal origin. He thinks that these cases, in many instances, are proved to be of naso-pharyngeal origin by the recovery of the ocular lesion under the sole influence of treatment directed towards the nose and pharynx. He refers also to two other groups, in one of which the ocular lesions are similar to the first, and improve under the combined influence of ocular and nasal treatment, while in the other the lesions are unaffected by nasal treatment.

NITRATE OF SILVER IN BLENNORRHŒA OF THE CONJUNCTIVA.

J. H. THOMPSON (*The Southern Clinic*, January, 1892) believes that no antiseptic applicable to the conjunctiva equals nitrate of silver. He admits the value of bichloride of mercury under ordinary circumstances, but thinks that its application in a strength equal to that in which nitrate of silver is efficient is detrimental. He points out the depth to which gonococci enter into the tissues, and consequently the value of nitrate of silver in the treatment of the diseases which are under their influence, because this salt, in addition to its germicidal value, is a superficial caustic and an astringent. He uses a strong solution in preference to the mitigated stick.

THE COMPARATIVE ACTION OF THE SULPHATE AND SALICYLATE OF ESERINE ON THE ACCOMMODATION AND THE PUPIL.

WADZINSKI (*Thèse de Doctarat.*, St. Petersburg, 1891) reaches the following conclusions: Sulphate of eserine in fresh solutions has a stronger action on the accommodation and the pupil than the salicylate, but neuralgia and other disagreeable sensations are more pronounced; eserine acts more energetically in young subjects than in adults; solutions of eserine do not lose their activity, even after a year, although they act more feebly; old solutions cause more conjunctival irritation than fresh solutions; it is sufficient to use eserine in the strength of one-half per cent., because the spasm and contraction of the pupil are the same as with a solution of one per cent., but the pain and other sensations are much diminished; eserine solutions should be kept in well-stoppered bottles and in cold places.—*Revue Générale d'Ophthal.*, November 30, 1891.

ETIOLOGY AND TREATMENT OF PHLYCTENULAR CONJUNCTIVITIS.

FUKLA (*Archiv f. Augenh.*, xxiii. p. 351) thinks that a very small number of children attacked with phlyctenular keratitis are really scrofulous, but that many of the cases depend upon dyscrasias of the parents, insufficient nourishment, and bad domestic hygiene. One of the most frequent causes, in his opinion, is blepharitis, especially the ulcerous variety. Hence he recommends cauterization of the palpebral edge with the mitigated stick, and the external use of a solution of acetate of lead, three to five per cent.

THE TREATMENT OF TRACHOMA.

MAKIEWSKI (abstract in the *Revue Gén. d'Ophthal.*, November 30, 1891) describes three cases of trachoma in the course of cicatrization of the conjunctiva, in which he obtained excellent results with inunctions of blue ointment on the skin of the eyelids. The same author regards the most efficacious treatment of trachoma in the period of the eruption of the granulations to be: Cauterization (galvano-cautery) of each granule, the *séances* to occur weekly. During the intervals

he employs massage of the conjunctiva with an ointment of iodoform. In dry trachoma with pannus, this author prefers an infusion of jequirity; in the cicatricial period, the treatment previously mentioned,—namely, rubbing with blue ointment.

CONTRIBUTION TO THE CLINICAL STUDY OF TRANSPLANTATION OF THE MUCOUS MEMBRANE.

K. SAPEJKO (Westnik, *Ophtalmologuii*, July and October, 1891), after an historical review of transplantation of the mucous membrane reports thirty-four cases of trichiasis with entropion, in which he performed the operation of transplantation of mucous membrane. The first operations were performed according to the method of Van Millingen. Afterwards this method was modified, in order to make it more rapid, and also to make it applicable, not only to trichiasis, but likewise to entropion. The author practises his modification as follows:

The intermarginal space must be slit to the distance of five or six millimetres along the whole length of the ciliary margin, and from two to three millimetres beyond the eyelashes on each side. At each end of this slit an inclined vertical incision is made (above and within the side of the nose, and above and without the side of the temple), three to four millimetres in length. This is done in order to change the intermarginal incision into an open wound. After the ciliary edge has been turned up, there must be careful examination of the edge of the tarsus to remove the bulbs of the eyelashes. If there is any thickening or incurvation of the edge of the cartilage, more or less of its convex surface should be cut away, until it becomes thin and supple. After arrest of hemorrhage, a strip of mucous membrane is taken from the patient's lip, longer and larger than the intermarginal incision, and freed from the cellular tissue. This is placed for a few seconds in a sublimate solution, 1 to 3000, and then fastened in the intermarginal wound with eleven or twelve silk ligatures. The ends of the upper ligatures are tied on the patient's forehead, so as to keep the edges of the intermarginal wound from closing and displacing the transplanted slip.

According to this modification, he has performed twenty operations in cases of trichiasis and entropion of the upper eyelid. In every case the result was most satisfactory.—*Revue Générale d'Ophthal.*, November, 1891.

THE EMPLOYMENT OF ANTISEPTIC COLLYRIA.

M. ED. PERGENS (*Annales d'Oculistique*, December, 1891) discusses the various methods which have been described for the aseptic preparation and preservation of collyria, gathering them into four classes,—namely, sterilization by heat, sterilization by the addition of antiseptics, the combination of these two methods, and the chemical synthesis of alkaloids with antiseptic acids.

The author has tried, without positive results, the dry mixture of alkaloids with impalpable powders, having no special action on the conjunctiva or the cornea. The powders were applied in the same way that calomel is used. Experiments showed that these powders were infected with microbes. He has also used fragments of gelatin, containing one-twenty-fifth milligramme of the alkaloid. In the majority of cases the action was insufficient, and cultivation demonstrated the presence of micro-organisms.

Micro-organisms are introduced into the solutions in various ways. Apart from the use of non-sterilized bottles, they come from the water, from the surrounding air, when the bottles remain open, and especially from the small pipettes which are used in the instillations. Sterilization by heat effectively excludes primary infection, but the tubes and the surrounding air still contain the germs. The addition of a germicide would kill the micro-organisms which are introduced if the eye could tolerate concentrated solutions. Franke has recommended the use of collyria sublimated to 1 to 10,000, believing that the solution is fatal to microbes in a space of time varying from twenty minutes to two hours. It has been pointed out, however, that there is a great difference between the antiseptic action of a simple watery solution of sublimate and one to which an alkaloid has been added. It seems that as yet the antiseptic has not been found which is suitable for collyria. The three alkaloids most used in ophthalmology form a precipitate with sublimate. This precipitate is formed slowly in the cold and rapidly in heat, and Pergens shows by chemical analogy that the solutions of atropine, cocaine, and eserine, to which there has been an addition of sublimate, do not long remain antiseptic, provided the introduction of the mercury salt has been used within suitable limits.

The only rational measure to be employed seems to be the sterilization of solutions, according to the method of Davidson, but it is

a very troublesome procedure, and entails both loss of time and loss of considerable quantities of the material. An ideal aseptic collyrium is one which economizes time and expense.

Pergens suggests hypodermic tablets which have been carefully manufactured and well dosed. These are dissolved in sterilized water, and poured into bottles of the capacity of three to five grammes. Each patient is treated with a different tube, which is then plunged into the sublimate solution, where it remains for several hours. These pipettes are washed with water and sterilized with steam, because he believes the principal cause of infection to be from this source.

RESECTION OF THE OPTIC NERVE.

Dr. L. Webster Fox (*Ophthalmic Record*, January and February, 1892), who has written extensively on resection of the optic nerve, communicates a brief abstract of Trousseau's case, in which this operation, performed to avert sympathetic inflammation, was a failure. He believes that the subject is an important one, and all evidence, both in favor of and against the operation, should be gathered together. Trousseau reasons from his case that resection of the optic nerve does not necessarily prevent ophthalmitis, and that enucleation, after the symptoms of sympathetic ophthalmia have arisen, may prevent the loss of vision.

OPERATIVE TREATMENT OF DETACHMENT OF THE RETINA BY SCHOELER'S METHOD.

Dr. Charles Stedman Bull (*Medical Record*, January 16, 1892) details the history of five cases on which he performed Schoeler's operation for detached retina,—namely, the injection of iodine to bring about adhesive inflammation. Dr. Bull's experience does not lead him to endorse the operation. There was no distinct improvement in any case, and the operation increased the difficulty in practically all of them, in one causing acute, infectious panophthalmitis.

SURGICAL TREATMENT OF GRANULAR LIDS.

Dr. L. Webster Fox (*Ophthalmic Record*, January and February, 1892), after a review of the operation of *grattage*, as practised in the French clinics (see this journal, page 58), suggests an addition to the treatment. He is a strong advocate of Burow's operation, or complete division of the cartilage from the conjunctival surface along a line parallel with, and three millimetres from, the free border. The inverted border of the lid falls forward, and is kept in its natural place by the cornea. Hence in any of the cases in which cicatricial contraction occurs after surgical interference in granular lids, this operation could be performed, and Dr. Fox believes that "grattage with a Burow" will meet all of the indications.

SOAP IN THE TREATMENT OF AFFECTIONS OF THE LID MARGINS.

Wolffberg (abstract *Centralbl. f. Prakt. Augenheilk.*, December, 1891, p. 384) advocates, from the hygienic stand-point, the use of a neutral fluid soap as a means of washing the borders of the lids. The ciliary margins are thus freed from the milder types of the affections to which they are subject, and are protected against severe sequelæ.

OPHTHALMIA NEONATORUM.

Dr. T. B. Schneideman, in a paper read before the Philadelphia County Medical Society, December 19, 1891, and published in the *Medical and Surgical Reporter* for January 23, 1892, advocates the following treatment: The attendants should remove the pus once every hour during the height of the disease. This can be done by gently separating the lids and flooding the conjunctival sac repeatedly until the cleansing fluid returns clear and unmixed with pus. The fluid employed is a rather strong solution of bichloride of mercury,—1 to 2000. To modify the inflamed membrane, a solution of nitrate of silver—ten, twenty, or even forty grains to the ounce—should be applied once, or perhaps twice, in the twenty-four hours to the everted lids by the surgeon. According to Dr. Schneideman, no subsequent washing with sodium chloride solution is necessary. With this treatment Dr. Schneideman has not had a single bad result.

In the discussion which followed this paper, Dr. de Schweinitz endorsed the use of nitrate of silver, in the strength of ten to fifteen grains to the ounce, applied at a time when the free secretion of yellow pus indicated the drug. He believed that nitrate of silver acted

as a germicide, a superficial caustic, and an alterative. He doubted the germicidal efficiency of bichloride of mercury, as it is ordinarily employed in ophthalmia neonatorum, on account of the depth to which the gonococci penetrate, and deprecated the use of very strong solutions, lest they exert a depressing effect upon the corneal tissue and induce to ulceration. He recommended that, if bichloride of mercury is employed, a strength of one grain to the pint should be used alternately with a saturated solution of boric acid, but placed the greatest faith in nitrate of silver. He preferred eserine to atropine in corneal ulceration, provided the condition of the iris did not contraindicate the former drug.

SIMPLE CATARACT EXTRACTION.

Dr. Edward Jackson (*Medical and Surgical Reporter*, January 16, 1892) gives his experience with simple cataract extraction. His corneal section is made upward because the wound in this position is better protected from infection or relative displacement of the lips of the wound than in the downward section. It is made in the clear cornea, sometimes as close as it can be to the limbus, without encroaching on it, being parallel to the corneal margin. The plane of the knife which makes it is parallel to the plane of the periphery of the iris. The section is made to include nearly, and sometimes quite, half of the circumference of the circle of which it is a part.

Capsulotomy is performed with the point of the knife used in making the corneal section.

The delivery of the lens is effected by making pressure with a lens-spoon backward on the lower portion of the cornea, and with a corneal spatula slightly downward upon the upper ciliary region, causing the lens to push into the pupil and engage in the corneal wound, the movement of the lens being steadily followed by a slight upward movement of the spoon, and the necessary pressure never being relaxed until the greatest thickness of the lens has passed through the corneal section.

Dr. Jackson practises washing out the anterior chamber with the apparatus of Dr. Lippincott, of Pittsburg. If the iris has prolapsed after the section, a stream of boric acid solution is the simplest and best repositor, its effect being to carry the iris into position, and at the same time to provoke a marked and very satisfactory contraction of the pupil. Eserine is instilled after the washing of the conjunctival sac.

OTACOUSTIC TREATMENT IN CHRONIC DEAFNESS.

Under this title A. J. Maloney reports, in the *Annals of Ophthalmology and Otology*, January, 1892, the results of ten cases of marked gain in hearing under the use of apparatus designed to concentrate the waves of sound upon the ear. Almost total and apparently hopeless deafness has been known to pass away under persistent exercise of the hearing by vocal impressions exaggerated to the point of becoming audible, the vibration, doubtless, serving as a delicate massage to mobilize the stiffened articulations. To this end he believes in the especial fitness of his "otophone,"—a hearing-tube rather transcendentally designed, but certainly serving as an excellent aid to hearing. Such instruments will, doubtless, do much to secure the fair trial which is necessary in order to gain any result, since they render far less burdensome the self-sacrificing task of thus exercising the auditory apparatus; and it is to be hoped that others will systematically test the matter in suitable cases and be able to verify the results brought forward by the enthusiastic inventor, who reports, in some cases without other treatment, much relief from tinnitus, as well as improved hearing.

ON THE ABUSE OF THE POLITZER INFLATION IN THE TREATMENT OF EAR-DISEASE.

Under this heading, Professor Buerkner, in the *Berl. Klin. Wochenschrift* of November 3, 1891, deals with the limitations of this most valuable and epoch-making measure, and reiterates the counter-indications to its use. So often has he seen harm result from its misuse, especially in lay hands, that he would restrict it to the suppurating cases and those with bilateral non-sclerotic catarrh, particularly among children. The tendency of the air to pass to the unobstructed side is dwelt upon, with its likelihood of unduly stretching the normal drum membrane, damaging the hearing and setting up a troublesome tinnitus in the ear previously normal, and this most probably when the employment has been left to lay hands, and when any gain in the diseased ear seems the more marked and encouraging by comparison with the deteriorating hearing of the other. The escape of compressed air into the stomach in some cases is also cited as an incidental disadvantage. When left in the patients hands in the most appropriate case, the Politzer bag is almost sure to be

passed on to others to whom it may prove disastrous. Buerkner has known this ready instrument to be vigorously employed for months, where inspection would have shown that the deafness was wholly due to cerumen or other trouble of the external meatus, not to speak of labyrinthine cases where it was slightly, and sclerotic ears in which it was seriously, harmful.

While there are certain safeguards possible in its use, and some sharing of its dangers by the preferred method of catheterization, the points, though not new, are well taken, and deserve careful consideration by all who employ the Politzer method.

TUBERCULOSIS OF BONES AND JOINTS.

SENN (*Annals of Surgery*, January, 1892), after a careful study of the literature of this subject, and a review of the brilliant results attained by Krause, Trendelenburg, and others, reports a series of cases detailing the results of this treatment in his hands. He ends his paper with the following conclusions:

1. Parenchymatous and intra-articular injections of safe antibacillary substances are indicated in all subcutaneous tubercular lesions of bones and joints accessible to this treatment.

2. Of all substances so far employed in this method of treatment iodoform has yielded the best results.

3. The curative effect of iodoform in the treatment of local tuberculosis is due to its antibacillary effect and its stimulating action on the healthy tissue adjacent to the tubercular product.

4. A ten per cent. emulsion in glycerin or pure olive oil is the best form in which this remedy should be administered subcutaneously.

5. The ethereal solution should never be employed, as it is liable to cause necrosis of the tissues overlying the abscess and iodoform intoxication.

6. Tubercular abscesses and joints containing synovial fluid or tubercular pus should always be washed out thoroughly with a three to five per cent. solution of boric acid before the injection is made.

7. Injections should be made at intervals of one or two weeks, and their use persisted in until the indications point to the cessation of tubercular inflammation and the substitution for it of a satisfactory process of repair, or until the result of this treatment has shown its inefficacy, and indications present themselves of the necessity of resorting to operative interference.

8. If the treatment promises to be successful, symptoms pointing to improvement manifest themselves not later than after the second or third injection.

9. In tubercular empyema of joints and tubercular abscesses, gradual diminution of the contents of the joint or abscess at each successive tapping, lessening of the solid contents of the fluid, and increase of its viscidity are the conditions which indicate unerringly that the injections are proving useful, and that in all probability a cure will result from their further use.

10. Moderate use of limb is compatible with this method of treatment, provided the disease has not resulted in deformities which would be aggravated by further use of the limb; in such cases correction of the deformity should be postponed until the primary joint affection has been cured by the injection.

11. Parenchymatous and intra-articular medication with antibacillary remedies has yielded the best results in tubercular spondylitis, attended by abscess formation and tuberculosis of the knee- and wrist-joints.

12. This treatment may prove successful in primary osseous tuberculosis, followed by involvement of the joint, provided the osseous foci are small.

13. Extensive sequestration of articular ends with secondary tubercular synovitis always necessitates resection, but preliminary treatment by iodoform injections into the affected joints constitutes a valuable preparatory treatment to the operation, and adds to the certainty of a favorable result.

14. In open tubercular affections of joints, incision, scraping, disinfection, iodoformization, iodoform gauze tampon, suturing, and subsequent injections of iodoform emulsion, as advised by Billroth, yield excellent results, and should be employed in all cases in which a more formidable operation can be avoided.

15. Balsam of Peru ranks next to iodoform in the treatment of tubercular affections of bones and joints, and if the latter remedy for any reason cannot be employed, or has failed in effecting the desired result, it should be given a fair trial if operative treatment is not urgently indicated.

NITROGLYCERIN IN THE TREATMENT OF REYNAUD'S DISEASE.

CATES (*University Medical Magazine*, vol. iv. No. 5, 1892) reports a case of Reynaud's disease—that is, symmetrical gangrene of the extremities—in which great relief was obtained by the injections of nitroglycerin, commencing with $\frac{1}{100}$ of a grain, and gradually increasing the dose up to $\frac{1}{50}$ of a grain, three times a day. The patient grew better, sores healed, and the pain disappeared like magic, so that the routine duties of life were again made possible.

EFFECT OF MERCURY ON THE BLOOD OF SYPHILITICS.

BIEGANSKI (*Archiv für Dermatologie und Syphilis*, 24 Jahrgang, 1892), from a research upon the alteration of the blood incident to syphilitic infection, concludes that the syphilitic poison has no effect in altering the number of red blood-corpuscles; that it increases the number of white blood-corpuscles, particularly the small mononuclear lymphocytes. At the same time the number of the polynuclear white blood-corpuscles diminishes. The hæmoglobin of the blood is distinctly lessened. On the administration of mercury, the blood count is subject to marked changes. These, however, are dependent upon the greater or lesser thickness of the blood, and are not due to any change or alteration in the nourishment of the patient. Mercury lessens the number of white blood-corpuscles, and renders the relation between the white and red almost normal. It is particularly the mononuclear white corpuscles which are diminished in number, the polynuclear cells again becoming more numerous. The quantity of hæmoglobin is distinctly increased by the administration of mercury.

TREATMENT OF ACUTE POSTERIOR URETHRITIS BY SANDAL-WOOD OIL.

WICKHAM (*L'Union Médicale*, No. 145, 1892) again calls attention to the value of oil of sandal-wood in acute urethritis, especially when this develops in a violent form characterized by tenesmus, frequent micturition, and the passage of blood. Following the counsel of Horteloup, six to eight capsules a day are given, each capsule containing about six minims of the essence of sandal-wood. In reported cases the effect was most gratifying, distressing symptoms were promptly modified, and the patient suffered only from a profuse purulent discharge, which yielded finally to instillations of nitrate of silver.

VAGINITIS IN CHILDREN.

COMBY (*Revue Mensuelle des Maladies de l'Enfance*, tome x., January, 1892), writing of the vaginitis of children, concludes that this inflammation is almost without exception due to the gonococcus, although in perhaps the larger majority of cases contagion is not due to criminal practices, but is conveyed by means of clothing, by the bath, or by the fingers. He distinguishes two varieties,—namely, an acute form, which recovers rapidly, and a chronic form.

He recommends, as prophylactic treatment, care in the selection of those who have charge of children, and, when there are many little ones crowded together, the isolation of those diseased. As for the treatment of the active disease, lotions of bichloride of mercury, 1 : 2000, and of boric acid, four per cent., are ordered three or four times a day, followed by application of powdered salol. Sulphur baths are given three or four times a week. When there is vaginitis, suppositories are introduced into the vagina, containing one and a half grains of salol to fifteen grains of cocoa-butter. These suppositories are given two or three times a day.

Comby quotes the conclusions of Vibert and Bordas, who deny that this form of inflammation is specific, although the characteristic micro-organisms are found. This denial is based upon the fact that it is often impossible to elicit a history of contagion.

Chantemesse, in commenting upon Comby's paper, states that vulvo-vaginitis of children is always contagious, and that it is practically always gonorrhœal in its nature.

THE TREATMENT OF ELBOW FRACTURE.

The merits of the extended position, as opposed to the flexed position in the treatment of fracture about the elbow, are strongly insisted upon by FRERE (*Provincial Medical Journal*, January 1, 1892). The disadvantages of the flexed position are expressed as follows:

1. The plea of convenience alone will not support the flexed position.

2. However carefully reduction may have been accomplished, when the arm is flexed, we cannot be sure that the good position is

being kept up. However great the displacement, it will never be detected so long as the arm is bent.

3. To put the arm up at right angles "for fear of anchylosis" is an admission of weakness. The chief cause of stiffness and anchylosis would appear to be imperfect reduction of the fragments. Since the rectangular position favors displacement, it follows that such a position is rather conducive to anchylosis than otherwise.

4. Therefore the rectangular position is the worst that can be adopted; the fully flexed position has many serious drawbacks; and it would be far better to adopt a method which insures accurate coaptation of the fragments, and thus diminishes the risk of anchylosis to a minimum, and, above all, obviates deformity by keeping up the normal angularity of the limb.

5. Such a method we have in the extended position, which has already, in the hands of those who have used it, proved eminently satisfactory.

The contrasted advantages of the extended position are given as follows:

1. Certainty of reduction.

2. Less tendency, therefore, to stiffness or anchylosis, and a much earlier return to usefulness.

3. It obviates the deformity so frequently seen after the present treatment.

4. Being suitable for all fractures of the elbow, as well as for dislocation, it avoids the danger of a fracture, which has been overlooked, being left in such a position that union is either faulty or absent altogether.

5. It offers a far safer routine practice than the rectangular, which ought rather to be called the "wrong angular" position, and it will thus prove of the greatest value to the general practitioner.

PERFORATION INTO THE LESSER PERITONEAL CAVITY.

VAN HOOK (*Chicago Medical Recorder*, January, 1892), in a paper upon the above subject, concludes that (1) when the stomach is distended, a penetrating wound from in front may open the posterior—*i.e.*, the retro-omental—without injuring the anterior wall of the stomach. 2. In all wounds of the anterior wall of the stomach, we should examine the posterior wall by palpation through an artificial opening in the omentum. 3. The insufflation of gas into the smaller peritoneal cavity through a perforation of an adjacent viscus does not yield diagnostic information distinctive of injury in that cavity prior to laparotomy. 4. In the treatment of such injuries the gastro-colic omentum should invariably be opened for the purpose of cleansing and for examination, if not for convenience in closing perforations. 5. Wounds of the meso-colon should be studied from the side of the lesser peritoneum, as well as from that of the greater peritoneum, to insure the discovery of perforation, fæcal extravasations, and hemorrhage.

RUPTURE OF THE UTERUS.

HAVEN (*Boston Medical and Surgical Journal*, vol. cxxvi. No. 4) treated a patient suffering from bleeding after childbirth, by curetting. The curette passed through the walls of the uterus into the abdominal cavity. Twenty-four hours after this accident the abdomen was opened. The uterine tissue was found to be in a necrotic condition at the position of the rent. After excision of a V-shaped piece, leaving a clean wound in what appeared to be normal uterine tissue, the rent, extending from the right cornu almost to the internal os anterior to the broad ligament, was sutured. Muscular and peritoneal sutures were applied. The abdominal wound was closed without drainage. The patient recovered.

From a statistical study of the subject, Haven finds that one rupture occurs in about three thousand five hundred cases of childbirth. In regard to treatment, he believes that, whether the rupture occurs in a pregnant or non-pregnant uterus, our best course is to open the abdomen, wash out the abdominal cavity, and, where the edges are not too much bruised and torn, unite the tissues by deep and subserous stitches. Punctured wounds, as those made by the sound, for instance, can very properly be left to nature, since autopsies have frequently shown the scars from punctured wounds which occurred during life but gave no trouble.

A CASE OF CÆCAL HERNIA COMPLICATED BY INFLAMMATION OF THE VERMIFORM APPENDIX.

A case of this character is reported by GANGOLPHE (*Lyon Médical*, 24 Année, tome lxix). The hernia was one of gradual formation, and at the time it came under observa-

tion had descended into the scrotum of the right side. It was about the size of a child's head, and was acutely inflamed, although there were no signs of strangulation. An operation was performed, opening an abscess of the scrotum. On further search, the vermiform appendix was found, and was removed in spite of firm adhesions. The patient recovered.

In relation to hernia of the large intestine, the conclusions of Tuffier are of interest. He states that, though congenital hernias of this nature may be without sac, peritoneal investment is found in all ruptures of slow formation. It is true that cases are reported where a sac has been absent, but none of these cases will stand careful study.

Gangolphe wishes, by his paper, to draw attention to the fact that appendicitis may occur in the sac of a hernia; that this will be indicated by inflammatory phenomena, together with suppuration, but without symptoms of strangulation; that operation is exceedingly difficult, on account of the firm adhesions, and that incision, if colotomy is determined upon, should generally be made upon the anterior inner surface of the tumor, since thus the danger of wounding the large intestine is lessened.

VAGINAL AND ABDOMINAL HYSTERECTOMY FOR REMOVAL OF A CANCEROUS UTERUS.

A case of vaginal and abdominal hysterectomy is reported by CUSHING (*Boston Medical and Surgical Journal*, January 28, 1892).

The patient was 37 years old, and five months before she came under observation had submitted to an operation for removal of a cancer of the cervix uteri. Subsequent to this there was recurrence of the disease, the whole uterus being involved. It was, however, movable, and the broad ligaments were not implicated. The uterus was found to be so large that the vaginal extirpation, which was attempted, was not possible. Therefore an abdominal section was performed, and the diseased organ was removed. The pelvis was irrigated with hot distilled water, and a twist of iodoform gauze as large as the wrist was drawn from above down through the vagina. The abdomen was then closed, not having been open over ten minutes. Forty-seven hours after operation the patient died of heart-clot. This complication is peculiarly liable to follow operation in grave cases of cancer or myoma, since both these conditions are associated with impoverishment of blood from continued hemorrhages. Hence it appears clear that the operation, if done at all, should be performed early, before the system is exhausted. There is practically no danger in vaginal hysterectomy if done early and the patient is in good condition, and if the subsequent treatment is judicious. When the patient is weakened from hemorrhage and discharge, it is sometimes well to do a preliminary operation for removal by the spoon-saw and cautery of as much of the diseased tissues as possible. The absorption of septic matter is thus stopped, opportunity is given for better nutrition, and after two weeks the major operation can be performed with a better prospect of success.

The disadvantages of this course are the increased danger of relapse, owing to the longer course of the disease, and the disinclination of the patient to go through two operations when one might answer.

THE ABORTIVE TREATMENT OF INGUINAL BUBOES.

BLASCHKO (*Deutsche Medizinal-Zeitung*, 13 Jahr., No. 3) claims that inguinal buboes, even if they be suppurating, and fluctuation be distinctly perceptible, can, in nearly all cases, be aborted by the use of mercury plasters and warm poultices. Patients so treated can pursue their ordinary avocations, and are healed at the end of three or four weeks; about the same period required in case the cutting operation is undertaken. Mercury plaster is first applied, and over this is placed the poultice, which is changed from time to time as required.

Reviews.

THE TREATMENT OF TYPHOID FEVER, WITH THE REPORT OF FIFTY-FIVE CONSECUTIVE CASES, WITH ONLY ONE DEATH. By James Barr, M.D., with an introduction by W. T. Gairdner, M.D., LL.D. London: H. K. Lewis, 1892.

Some of the readers of the THERAPEUTIC GAZETTE are, perhaps, familiar with the methods of Dr. Barr in treating typhoid fever, and know that his pet theory is that patients should be placed in a "tank," or continuously bathed. He makes the striking statement in his preface, after recognizing the difficulties which attend the general adoption

of this tank method, "that a good many cases of typhoid fever are permitted to die from want of taking sufficient trouble to keep them alive," but the key-note which he strikes in his preface, in regard to the treatment of typhoid fever, is that "good nursing is one of the most important factors, and that those who read this work will find that, in my opinion, good nursing implies the carrying out of a great many details." Perhaps this is the secret of his success.

After the introduction by Professor Gairdner, a history is given of the treatment of continued fevers from the time of Sydenham. This is followed by a chapter upon the diagnosis of the disease, in which he quotes an article which appeared in the THERAPEUTIC GAZETTE for February, 1891, concerning Ehrlich's test with sulphanilic acid, or, speaking more correctly, diazo-benzine-sulphonic acid. He also quotes the paper of Dr. Simon, which was published in the *Johns Hopkins Bulletin* for November, 1890. The author opens his chapter upon the treatment of typhoid fever with the words, "I am now in a fair position for describing my own method of treatment." After citing the fact that the mortality from typhoid fever, under the present expectant treatment, is from fifteen to twenty-five per cent. (!), he calls attention to the fact that in the fifty-five cases which he has had under his care, but one died.

Careful directions are next given as to the disinfection of the stools, the sick-room, and of the disinfection of the persons who minister to the sick. It is next shown, in the space devoted to *medicines*, that Dr. Barr's cases are not confined to tank treatment, but receive considerable internal medication. Thus, he has administered beta-naphthol, salicylic acid, quinine, or sometimes salol or calomel. He also quotes to a considerable extent Burney Yeo's chlorine treatment. More interesting than all, he condemns the employment of the new antipyretics, in doing which he is certainly correct.

Dr. Barr next speaks of the diet, and the use of alcohol and the various forms of cold-pack.

The tank, which he employs, consists of a well-made wooden box, about six feet long, two feet ten inches wide, and sixteen inches deep, which is lined with lead, and contains about seventy gallons of water.

The patient is wrapped up in a blanket, and completely immersed except the head. It is important to use a blanket for this purpose rather than a sheet, because frequently a small portion of the chest is raised above the water, and, the blanket being a bad conductor of heat, this portion of the surface does not get chilled, which would happen if a sheet were used. The tank is covered with a half-lid, which prevents the weight of the bed-clothing resting on the patient; a water-proof sheet and bed-clothing are used to keep up the heat of the water. He thinks the tanks could easily be provided with a small circulating boiler to maintain a uniform temperature, but this is quite unnecessary, as he has found that the removal of a bucketful of tank-water, and the addition of the same quantity of hot water every two hours, is sufficient to maintain a fairly uniform temperature, and a variation of one or two degrees is a matter of no moment. If a patient's temperature in the mouth is over 100°, the temperature of the tank need not rise above 90° to 93°; but as the body temperature approaches the normal, so should the tank temperature approach 98.5°. He has not found it necessary to lower the temperature of the water below 90°, nor to raise it above 98°. A rise of a few degrees in the tank temperature is sure to increase the heat of the body, though to a less extent, and by regulating the heat of the water there is no fear of any collapse, as the temperature of the body cannot fall below that of the surrounding medium. The patient is kept constantly in the tank, even when having a movement of the bowels.

A number of pages of the book are next taken up with the consideration of the ordinary complications and major symptoms of enteric fever, and the last half of the work is consumed in giving full records of the fifty-five cases from which Dr. Barr draws his conclusions as to the value of his method.

As yet too few statistics exist to enable us to regard such measures with favor or disfavor, but we doubt whether it is wise to macerate a patient, even if he is willing to submit to it.

PHYSICAL DIAGNOSIS: A GUIDE TO METHODS OF CLINICAL INVESTIGATION. By G. A. Gibson, M.D., D.Sc., F.R.C.P. (Edin.), and William Russell, M.D., F.R.C.P. (Edin.). Illustrated.
New York: D. Appleton & Co., 1891.

Although the preface of this book is dated March, 1890, and it is, therefore, quite two years old, so far as we know its publication by D. Appleton & Co. is its first presentation before the profession in America. There is but one other book of its size with which we are acquainted which in any way is its equal,—namely, that of Dr. Graham Brown,—which

has gone through three editions in England and two in this country.

Beginning the book with two excellent diagrams, showing the relations of the contents of the thorax and abdominal viscera anteriorly and posteriorly, the authors, after defining what physical diagnosis consists in, proceed to give very good instructions in regard to inspection, percussion, and auscultation, which, while brief, are probably sufficiently lengthy to convey to the reader all the information that is necessary for practical work. The chapter upon temperature, which is the third chapter in the book, is too brief, but is illustrated by quite a number of charts, showing the various temperature-curves which are commonly seen in the various febrile diseases.

Following this, a discussion of the integumentary system is gone into, no less than twenty-six pages being devoted to it. The illustrations in this chapter of the various parasites of the skin are exceedingly well drawn, and are much better than are commonly found in such works; indeed, from their appearance, we are led to suspect that the originals were micro-photographs.

Chapter V., which considers the physical diagnosis of diseases of the circulatory system, covers seventy-two pages, and is fairly complete. There is an illustration of Gower's hæmatocytometer, and several tracings taken with the sphygmograph, which indicate the types of radial pulsation in various forms of cardiac disease.

The illustrations of the thoracic wall, showing by dark shading the various areas in which the cardiac murmurs are most clearly heard, are well executed and accomplish their purpose, but the rather difficult task of explaining the relationship between the normal sounds and the murmurs is, we think, not as well done as it might be. The authors have covered a page with a series of diagrams, which are intended to illustrate the position of murmurs in the cardiac cycle, but we cannot see that they are of much value to the student, for the truth of the matter is, that the only way to study the physical diagnosis of cardiac lesions is upon the human body, and no descriptions, however good, can do more than prepare the student for the most rudimentary examinations. The chapter upon the respiratory system is much too brief, although this cannot well be avoided in a book of the size. Notwithstanding this fact, in the brief space of two pages at the end of the chapter, clear and proper directions are given as to the examination of sputa, both macroscopically and microscopically, the authors not discussing the various methods of staining, but recommending only those which they believe are the best.

The longest chapter in the book is one of seventy-three pages, upon the urinary system. We cannot help thinking that if some of this space had been given to the chapter upon respiratory diseases it would have been better. The illustrations, however, of the various forms of casts are unusually good. We have rarely, if ever, seen better ones, and it may be said with justice that a diagnosis which is to be reached by an examination of the urinary secretions is often so important that its methods cannot be taught too thoroughly.

A useful chapter to most physicians will be that upon the nervous system. Several large diagrams, showing the tracts which conduct motor and sensory impulses through the brain and spinal cord are given. The value of the chapter on nervous diseases is also increased by giving points in regard to the examination of the eye as a means of diagnosis. The last chapter upon examination of the eye is very concise, but unusually complete, considering the short space in which it is crowded.

Although there are many books upon physical diagnosis of greater or less merit upon the market, taking it all in all, we doubt if there is any book of the same size as that of Gibson and Russell which can be more heartily commended to the student or practitioner.

TRANSACTIONS OF THE OPHTHALMOLOGICAL SECTION OF THE AMERICAN MEDICAL ASSOCIATION, AT THE FORTY-SECOND MEETING, held at Washington, D.C., May 5–8, 1891.

The rapid progress of ophthalmic science requires the frequent reunion of its many dignified and eminent followers. Individual investigations proceed along such diverse lines and acquire such refinement in the methods of observation, classification, and treatment by the minute study and repeated experiments of the diligent explorers of this most comprehensive branch of medicine, embracing, as it does, therapeutics, surgery, pathology, optics, and mathematics, that one is likely to fall behind in technique and principle, unless he stands face to face with his colleagues, who have wrested from nature more of her secrets, whether they are part of the art of surgery or the complicated problems of physiological optics.

From the initial paper of Dr. S. D. Risley,

which is a careful inquiry into the etiology of cataract, to the closing paper by Dr. G. E. de Schweinitz on perimetric observations in glaucoma, in which this author adds still more valuable data to the large stock of information which his studies with this important instrument have already yielded, the report teems with matter worthy of the serious consideration of the specialist in eye-disease.

Those who have seen their fondest hopes of a cataract operation come to grief through inadvertent violence to an eye after operation will be well repaid by carefully investigating the apparatus of Dr. G. E. Frothingham for protecting the eye from injury. It is neat efficient, and easily applied. Dr. J. H. Thompson's paper on "Monocular Diplopia" deserves more than a passing notice. A paper by Dr. Randall on the centrad contains tables of the relative deviation of the centrad and prism-dioptre, and their relation to the metre-angle, which calls for decided praise. These valuable calculations have been prepared by careful and wearying labor and a fidelity to detail which are characteristic of their author.

Dr. Burnett's paper on "Keratometry" is especially worthy of interest, and contains much profitable information about an instrument which is destined to assume an important place in the oculist's consulting-room. Dr. Geo. T. Stevens presents a paper with some forcible illustrations, on the question of single vision, and the causes which interfere with its maintenance. His conclusion leads him to reject the doctrine of Von Graefe,—viz., the antipathy to single vision. Dr. Gould contributes the records of fifteen hundred cases of refraction.

There are many typographical errors, which might embarrass some of the authors by their unwarranted existence, and puzzle the reader, but for their easy conversion into the proper form. J. W.

A Practical Treatise on the Diseases of the Ear. By D. B. St. John Roosa, M.D., LL.D. Seventh edition, 8vo, 740 pp., 140 illustrations.
New York: William Wood & Co., 1891.

It is unnecessary, in reviewing a text-book which has taken and held the high stand occupied by each of the preceding six editions of Dr. Roosa's work, to enter into details as to the form and scope of its various parts, or its general value as a text-book; and notice will, therefore, be confined principally to the changes introduced in its present edition.

Naturally pleased with the reception it has met both in English and translation, the author's preface has a more assured ring, and he lays his work, many of its parts consisting practically of full monographs, before his specialist colleagues as well as beginners in otology. The general form is unchanged, and chapters, headings, and illustrations are the same; but much revision is evident on careful perusal, and the unaltered views of the able writer are often reinforced by new data or further considerations. Under the tests of the hearing, he maintains his advocacy of the simple test of whether the tuning fork is heard louder in front of the ear than when resting upon the mastoid, as a sufficient means of discriminating "nerve-deafness" from that due to lesion of the conducting apparatus; and states his belief that disproportionate deafness for the watch more than for the voice *invariably* indicates labyrinthine trouble. Using the fork in all cases in this manner, and claiming a similar employment at the hands of others, he believes that the proportion of cases of labyrinthine involvement, secondary to tympanic affections, is much larger than generally admitted,—a view supported by Bezold and other careful observers. He refers to electric illumination for examination, gives his preference to daylight and the concave mirror below the eye, and, making no attempt to use central illumination and the sight-hole of the mirror, he regards most of the jointed attachments for the brow-reflector as useless. He still strongly advocates the use of the Eustachian catheter in its smallest forms for the inflation of the tympanum in adults; although he has not improved his directions for its introduction, evidently he regards vision as of no aid in the matter, and discards the valuable help of the diagnostic tube in determining whether and how the air has passed. In the Politzer inflation the way in which the bag is grasped is considered unimportant, although the thumb at the base of the bag can exercise less than half the pressure which can be given, at need, by the whole hand; and he makes no mention of methods of preventing undue pressure in the more permeable ear. With these minor exceptions his chapter on the examination is excellent. In discussing chondritis of the auricle, he is less guarded than before in the advocacy of surgical intervention, and more clear in his belief that the lesion is often a result of furuncle of the meatus. In the latter affection he still employs the poultice, which has, doubtless, been

responsible for many an unfavorable result; but advises carbolized oil and protection instead of the poultice for eczema of the auricle. The harmlessness of most undisturbed foreign bodies in the canal, the danger of interference, except with the syringe, for their removal, and the efficiency of this means in the dislodging of impacted masses, whether of cerumen or other material, are stated in the same emphatic manner as in former editions; but he would add to the value of this instrument if he directed that its stream should be thrown into the illuminated canal, guided by the surgeon's eyes. His tables of statistics of diseased conditions are generally up to date, but he still cites Buerkner as Bueckner in several places. He is more positive that aspergillus and cerumen are not rarely found together, and reiterates the view that impaction of cerumen is almost always a symptom of deeper trouble, and that inflammatory heat of the canal may be a factor in its hardening.

His sections on the treatment of the nose in diseases of the tympanum are a little fuller, and contain, among other wise sentences for the rhino-laryngologists who have recently discovered the ear, "When rhinologists have acquired a larger experience in diseases of the ear, they will not be so confident, as some of them now are, of curing chronic aural disease by removal of nasal stenosis." In like manner he remains sceptical as to most of the operative measures upon the drum-head, etc., for the relief of tinnitus and deafness; and says, as to the excision of the drum membrane and ossicles, so warmly advocated of late, "I advise a careful reading of Lucae's cases" (Lucae was the first and is probably the most experienced operator in this direction) "before too high hopes are had as to the efficacy of this operation in any considerable class of cases." The removal of carious ossicles, as of any other dead particles of bone, he regards as indicated when other means have been faithfully tried in vain (he has, doubtless, often seen prompt and thorough healing of carious areas on the ossicles); but adds, "To advise the operation, however, when we cannot definitely decide that the ossicles are necrosed and the tissues granular, before less radical measures are given a fair trial, is unwise." In chronic catarrhal deafness he still makes a rather pessimistic prognosis, especially as to all "proliferous" cases, which, he thinks, can hardly be delayed in their downward course; and while holding that many recent catarrhal cases, especially in the young, will yield perfectly to treatment, his experience of the tardiness with which help is sought discourages him from expecting more than an alleviation in the majority of such patients. He relies principally upon iodine vapor, and sprays through the catheter, with the use of steam in the proliferous cases; and to his former approval of pneumatic massage by the Siegle speculum, he adds a strong commendation of the more recent "masseur" of Delstanche.

The discussion of chronic suppuration of the middle ear and its consequences is little changed, except in relation to operations upon the mastoid, and trephining of the skull for otitic intracranial abscess. He retains his conservative middle ground as to mastoid trephining, believing in its propriety and value, but looking on it as a measure not to be lightly regarded or used, except under grave necessity. His statistics show twenty operations upon the bone in his private practice, and only fourteen in his eighteen years' work at the Manhattan Hospital, figures as much in contrast with the one hundred and twenty-nine operations among the three thousand two hundred and twenty-eight patients of the last two years in Schwartze's clinic as they are with those of men who have not operated upon a single case among thousands. Probably these "grippe" years have made a different showing for him, as for most otologists. The directions for the operation are not very definite in case the mastoid shows no fistulous track to be enlarged. The drill or trephine is preferred to the chisel, and he aims to establish drainage rather than to remove carious tissue. "The instruments should usually be entered on the boss of the mastoid, which is usually just on a line with the meatus, and worked cautiously downward and inward." "The lateral sinus will always be avoided by keeping the instrument directed as above. In extremely rare cases the position of the sinus is abnormal, and it will be impossible to avoid it." No mention is made of the *spina supra meatum*, the only fixed landmark and the guiding-point of most operators; and the opening will involve the lateral sinus needlessly often in difficult cases, unless directed *forward* as well as inward, hugging the posterior wall of the meatus. No mention is made of the emptying of a lateral sinus filled with septic thrombosis, which has recently saved life in some pyæmic cases, and is worthy of consideration in desperate circumstances, although likely to fail in most of them.

The subject of brain-surgery in connection with ear-disease, which was foreshadowed in the last edition, is reviewed in the light of the numerous cases which have been thus successfully dealt with in the interim; but detail of such results has unfortunately been omitted, and too little is said of procedures and indications.

The section upon the labyrinth is still illustrated by the diagram representing the saccule as "communicating with the scala vestibuli," and ignoring the cochlear canal; and his first rule for recognizing nerve-deafness remains unqualified by the necessary phrase that *in the deaf* "the ability to hear the tuning-fork better and longer through the air than through the bones of the head is a symptom of disease of some part of the labyrinth," etc.; but it is enriched by new and most interesting cases of cochlear exfoliation.

He still regards quinine as dangerous in ear-disease, because of the congestion which it causes, although some of his case-histories (*e.g.*, p. 323) show no evidence of anything but advantage from its use; and ignoring its tendency to general vascular contraction, and that quinine blindness is always due to ischæmia, he ascribes the deafness to labyrinthine engorgement, though he wisely treats it by strychnine, and condemns mercury and depletives in any form.

Few other points are open to criticism in this most representative American text-book of otology, which, in this last edition well maintains its position among the best treatises in any language; and while the otologist may feel that some gaps might have been filled with advantage, he who turns to the book for practical aid in the management of ear-disease will not be left halting between two opinions, but will learn at once the clear, vigorous, and conservative views of its able author.

B. A. R.

Correspondence.

PARIS.

(From our Special Correspondent.)

On the Uses of the Strontium Salts in Bright's Disease —Treatment of Generalized Pelada, or Alopecia, by Intradermic, Antiseptic, and Stimulating Injections (Method of Dr. Moty)—Treatment of Pneumonia in the Paris Hospitals—Early Treatment of Typhlitis and Perityphlitis—A New Treatment of Inveterate Hiccough.

Dr. Constantin Paul has employed the lactate, chloride, and bromide of strontium in Bright's disease with great success. As was demonstrated by Dr. Laborde, the strontium salts have almost no toxic power, so that as much as sixteen or twenty centigrammes of the chloride of strontium may be given hypodermically to a guinea-pig without the production of bad symptoms. A rabbit will resist forty centigrammes given in a similar manner. When administered by the stomach, these animals will take almost any quantity without suffering from disagreeable consequences. The salt is afterwards found in the bones, liver, and fæcal matter.

Paul, in his clinical researches, has noticed that in Bright's disease the administration of the salts of strontium produces in every case diminution in the amount of albumen in the urine without increasing urinary flow. If the salt is withdrawn, the albuminuria will immediately recur. It has, however, been noticed that in uræmia, or in cases in which there is a tendency to anuria, strontium does not have a favorable effect. In other words, strontium seems to be valuable in parenchymatous nephritis, occurring in cases of rheumatism, scrofula, or gout, and also in the nephritis of pregnancy, unless uræmia is developed.

Dr. Barthelemy has used Dr. Moty's method in several cases of alopecia with remarkable results. This method consists in injecting four drops of a four per cent. solution of bichloride of mercury and two per cent. of cocaine, making the injection about the periphery of a plaque of the disease. If, however, the spots are large, as many as four or five injections are given. After the lapse of four days the treatment is repeated. After four injections the patient can usually be discharged. Dr. Barthelemy used this method especially in a case of pelada or alopecia, which attacked the patient in January, 1891, and which completely denuded the head, temples, and brows of hair. He used a solution of ten centigrammes of mercury to one hundred grammes of water, and began by injecting six drops into a spot the size of a silver dollar at six different points, one drop at each point. As the result of the injection there appeared six slight elevations of the skin, whitish in the centre, and analogous in every respect to spots of urticaria. The number of the injections was gradually increased until he had about forty small urticarial elevations upon the patient's head. From July 17 to October 15 he had about ten *séances*, which gave satisfactory results, and during that time the hair had begun to grow everywhere in an active manner, but was white in color.

Dr. Baudouin, of Paris, following the example of an American journal, has had published interviews upon the treatment of particular diseases by leading physicians. Pneumonia has been the subject of the last interview.

Dr. Dujardin-Beaumetz, in a great many cases of *pneumonia*, uses no remedy whatever, interfering only when complications occur, such as weakness of the cardiac apparatus as the result of a previous infective disease or of alcoholism. In such instances he employs caffeine hypodermically, not approving of the alcoholic preparations, but regarding coffee, tea, and kola as useful. Against nervous symptoms and delirium he employs chloral, and in alcoholic patients paraldehyde in the dose of 45 grains, but he never uses opium under any circumstances. Blisters are never used by him in the acute stage of the disease, but are employed during the convalescence, when the local symptoms do not rapidly disappear.

Professor Cornil recommends the use of an antiseptic mouth-wash, and when the local signs of pneumonia are great at the beginning of the disease, orders several wet cups, or resorts to venesection if the pulmonary congestion is severe. He then applies a large blister and gives a mixture as follows:

℞ Brandy or rum, ℥iss;
Simple syrup, ℥i;
Tincture of cinnamon, ʒi;
Distilled water, ℥iii.

A tablespoonful of this mixture should be taken as often as is necessary to strengthen the pulse. He also orders a little Dover's powder to increase perspiration.

Professor Peter does not treat the disease, pneumonia, but treats the patients, and thinks that robust and plethoric patients demand the use of venesection and scarifying cups, while the weak and senile must receive cordials, such as the prescription just given, and the bilious must be treated by emetics, such as tartar emetic or antimonium sulphuret, in the dose of from 4 to 5 grains.

Dr. Bucquoin orders no treatment in the pneumonia of children, but states that the adult, on the contrary, demands careful attention, and thinks that venesection is to be used in cases of intense pulmonary congestion, when the intrathoracic circulation is weakened. He also uses small doses of tartar emetic, which may be stopped as soon as emesis occurs, employing a blister towards the end of the disease to aid in producing resolution. He gives quinine, as a tonic, and alcohol, or the prescription given above, in pneumonia of the apex, or in old people.

Dr. Rigal uses quinine, in the dose of from 6 to 10 grains, as a prophylactic against infection, and thinks that quinine acts in addition as an excellent tonic not only to the general nervous system, but also to the cardiac nervous apparatus. If dyspnœa becomes excessive, full venesection is practised. Cold bathing is, he thinks, often very useful. The first bath, however, should not be colder than 50° or 55° F., nor should it last longer than from ten to fifteen minutes. During the time the patient is in the bath regular muscular massage should be practised, and if the first bath produces a favorable effect a second one can be given two or three hours later at a temperature lower than the first. After this the baths are repeated every three hours until all nervous symptoms have disappeared and the patient is sleeping, a condition which is usually obtained in from four to six baths. He does not even regard nephritis as a complication which contraindicates these baths.

Dr. Landouzy does not use blisters and similar remedies, but employs digitalis, coffee, caffeine, sulphate of quinine, and sometimes bloodletting. Dr. Feraud employs blisters, and in adynamia with great prostration gives the prescription of brandy, etc., already given in this letter, and some of the balsamic expectorants. He reserves the employment of antimony for the congestive forms where venesection is indicated. Acetate of ammonium and the tincture of bryonia or arnica are useful in the presence of great prostration. Musk and camphor are also valuable. Dr. Moisark, in certain adynamic forms of pneumonia, resorts to injections of ether and caffeine and spartein.

When there are grave complications, Oulmont also uses ether hypodermically, in the dose of from 1 to 2 drachms a day, reserving caffeine for cardiac distress. He uses bloodletting, and never blisters during the acute stage of the disease; but later, when the exudate disappears too slowly, he thinks blisters are serviceable.

Dr. Faisons, in cases of cardiac weakness, complicating pneumonia, resorts to alcohol in full doses, gives caffeine hypodermically, and sometimes alternates the treatment by caffeine with hypodermic injections of ether.

Dr. Huchard also strongly recommends injections of caffeine and ether. Under these circumstances the advantage is obtained of increasing diuresis at the same time that

the heart is stimulated. If cardiac failure is marked, Huchard orders hypodermic injections of camphor, one or two a day, in the following prescription :

Camphor, ʒvi;
Sterilized olive oil, ʒiv.
Use one or two hypodermic syringefuls.

When albumen is found in the urine, a mild infusion of digitalis is ordered, and to prevent renal insufficiency, milk is used in large quantity.

In regard to the treatment of pneumonia in children, the following opinions of specialists in children's diseases are interesting.

Dr. Hutinel states that acute lobar pneumonia in children, notwithstanding alarming symptoms, is a comparatively simple disease when compared to the symptoms of the same disease in adults. He orders quinine and alcohol in moderate doses, and a great deal of drink in the form of an infusion of the different mild teas used in France. He does not resort to blisters, but sometimes employs acetate of ammonium. If the fever is high, cold baths are used, and scarified wet cups are employed if congestion is present, and bloodletting if asphyxia is present. Caffeine and digitalis are valuable in the presence of cardiac weakness, or injections of ether may be employed.

Cadet de Gassicourt uses sulphate of quinine in small doses, the stimulating mixture already given, composed of brandy or rum, and an enema of musk, if delirium be present.

Dr. Legroux, for the reduction of the fever, uses alcohol and hydrochlorate of quinine in full doses, sometimes combined with antipyrin. If the pneumonia is extensive, he employs a large blister, relying on digitalis, however, and caffeine for combating cardiac weakness. If resolution does not take place early, he resorts to hypodermic injections of ergot night and morning. In cases of croupous pneumonias, such as are met with in children of from 3 to 10 years of age, they are put upon iodide of sodium, in the dose of from 7 to 15 grains, with simple syrup or tincture of eucalyptus. This method is continued during four to six days.

Dr. Descroizilles believes in local bleeding in young subjects, and employs for this purpose several scarifying cups, taking away from one to four ounces of blood, according to the age of the patient. He has used ipecac advantageously in plethoric children under five years of age. During convalescence he recommends the use of alcohol, tonics, and stimulants.

Professor Peters's early treatment of typhlitis and perityphlitis has proved on several occasions very efficacious. As early as possible six scarified or wet cups are placed over the tumor, or, preferably, a large number of leeches are applied in the same region. On the next day after the local bloodletting, the temperature generally falls and the pulse diminishes in volume.

Leloir presented at the last meeting of the Academy of the Sciences of Paris a new treatment of hiccough, which he first applied some years ago. He had been called to treat a young girl of 12 years, who had suffered for a year from incessant hiccoughing, which occurred about every half-minute, interfering greatly with nutrition and sleep. Nearly all the different antispasmodics had been recommended without success. Dr. Leloir then thought of strongly compressing the left phrenic nerve between the two sterno-clavicular attachments of the sterno-mastoid muscle. Digital compression, which was very painful, was used for three minutes, after which the hiccough completely disappeared, and has never recurred.

During the last five years he has used this method several times in acute and chronic cases of hiccough, compressing the nerve for a few minutes, with complete success.

LONDON.

(From our Special Correspondent.)

Whether it be the effect of the cold weather and fogs, of the influenza which is rife among us, or of the New-Year seasons, very little activity is just now being displayed in medical circles here. Perhaps this is hardly to be wondered at when the temperature is almost constantly varying from ten to thirty degrees on consecutive days. Although doctors do not seem to congregate at the societies, disease has certainly been plentiful enough. Thus, since October, we have had in all parts of the country a gradual increase in the number of cases of influenza, with its dangerous sequelæ, bronchitis or pneumonia. These latter have told very heavily on the aged and weakly, and the death rate has been in consequence high, rising in London to something like half as much again as the average at this time of year. As regards the treatment of influenza, there seems now to be a general balance of opinion in favor of the

following in uncomplicated cases: In the first stage, the patient will be chiefly eager to get rid of his pains, and one or two doses of antipyrin will do this, as a rule, most efficiently. The second, or catarrhal, stage usually demands a saline expectorant medication, and a very good formula is the following:

℞ Liq. ammoniæ acetatis, ℥ss;
Quininæ sulph., gr. i;
Acid. sulph. dil., ♏ii;
Aquæ, ad ℥i.
Sig.—To be given every six hours.

In the final or convalescent stage nothing has succeeded better than the ammoniated tincture of quinine.

As regards the reported discovery by Pfeiffer of the *vera causa* of influenza, in the shape of a specific, very minute bacillus, very little enthusiasm has been shown here; the accounts which reach us from Berlin are not by any means to our minds convincing, for to establish the specificity of a microbe we are accustomed to demand more than the fact that it has produced peculiar symptoms when inoculated into five or six monkeys, etc. It is to be hoped that this Berlin assertion, though far less important than the recent one by Koch, will not prove equally premature. By the way, I saw a few days ago a form of disease which, in London at least, does not seem at all common. The patient was a young girl, whose main symptoms were headache, sore throat, enlarged glands in the neck, and high temperature. Her throat presented exactly the appearance of a case of diphtheria, being very congested, and having both tonsils and fauces thickly coated with membrane. There would have been much doubt about the diagnosis had there not been two other cases of undoubted influenza in the same house. The local condition yielded to a few applications of glycerinum acidi tannici, and the patient became convalescent in a few days.

Paraldehyde is a drug about which we do not hear much at the present day, its disagreeable physical characters having rendered it unpopular. It would seem, however, to be a fairly safe hypnotic, if we may judge from a case published a short time back. The patient took by mistake three and a half ounces of the drug, after which she became perfectly unconscious and limp. However, by energetic treatment by strychnine hypodermically, rectal injections of peptonized beef and aromatic spirits of ammonia, faradic electricity, etc., she was at length awakened, having been completely unconscious for thirty-four hours. Of course, fatal cases have been recorded, the result of much smaller doses, but dangerous effects seem to be quite exceptional.

Dr. Sheridan Delépine, well known here for his very able and painstaking researches in pathology, especially for his studies on cellular pathology, has just been appointed to the chair of Pathology at Victoria University, Manchester. Although London can ill afford the loss of such an earnest worker, all are united in congratulating the Victoria University on having made such a wise choice. Dr. Delépine will, doubtless, continue his researches in that branch of pathology which he has made so thoroughly his own.

Diseases of the skin are at the present time attracting much attention, and a very seasonable paper on this subject is one by Dr. Eddowes, dealing with the diagnosis and treatment of the infective forms of eczema. He defines eczema as "a chronic parasitic catarrh of the skin, with desquamation, itching, and a tendency to respond to irritation by exudation and well-marked inflammation." Of all the varieties of the disease, the most common are those grouped together by Unna under the title of "Eczema Seborrhœicum." The disease usually commences, almost imperceptibly, as a scurfy condition of the scalp. Here it may remain for an indefinite period, or it may become moist, and extend to ears, forehead, or cheeks; thence it may spread to shoulders, arms, chest, and back, or other parts of the body, flourishing, as a rule, best on parts rich in sebaceous glands. The disease must be distinguished from ringworm by the absence of short stumps and crooked hairs. It is more difficult to diagnosticate from psoriasis, but a good point of difference resides in the fact that eczema seborrhœicum begins from the head and spreads downward, while psoriasis spreads, as a rule, more rapidly to all parts of the body, but specially to the elbows and knees. As regards treatment, Unna considers sulphur and resorcin as specifics for the disease, and they may be used in various ways. It is useless, however, to attempt to prevent recurrences on the body without first curing the scalp, which forms the breeding-ground whence the infection is carried, probably by the sweat. The head must be got into a thoroughly clean condition by washing with soft soap and spirits, after which, in bad cases, ointments containing ten to thirty grains of resorcin, according to the amount of the inflammation, may be applied. In slight

cases, a most excellent lotion is the following:

℞ Resorcin., gr. xxx to lx;
Glycerin., ♏x to xx;
Acet. cantharidis, ʒiii;
Ol. amygdali, ʒiv;
Aquæ cologniensis, ʒi;
Sp. vini. rect., ʒiii vel v;
Aquæ, q.s. ad ʒviii.

This is very pleasant to use, and, even after a first application, allays all itching and unpleasant concomitants of this variety of eczema. A pityriasis, with slight itching, should never be neglected, as it is one of the most fruitful sources of baldness. I can add personal testimony to the great value of some such lotion as the above. For eczema of the legs, nothing has proved in Dr. Eddowes's hands more efficacious than Unna's gelatin-zinc bandages. These are aseptic, comfortable, and protect the skin from external irritation, while preventing the spread of the disease to other parts.

Deaths under or after chloroform have been uncomfortably frequent of late; no fewer than four cases have already occurred since the new year. Under these circumstances, the action of the British Medical Association, in endeavoring, by means of a very distinguished committee, to obtain clinical evidence concerning the action of anæsthetics, is of particular interest. A record-book is to be received by the senior acting surgeon of every hospital in the kingdom possessing more than fifty beds, which will contain instructions. All the leading anæsthetists will be asked to co-operate, together with most of the leading surgeons, etc. It is thus hoped that, by collating a vast number of observations, something like certainty may be arrived at in determining the conditions under which chloroform is dangerous. It is now possible to obtain small quantities of the purified (Pictet) chloroform, which I mentioned in my last letter, and results obtained with this will be watched with very special interest.

In this country, as well as across the Atlantic, there is a rage for "patent" or, in other words, "secret" medicines. These can be sold or bought by anybody, provided they bear the government stamp, and there appears no limit to the harm that can be innocently done to children and others by means of the various soothing syrups, cough elixirs, etc., to be obtained at any grocers. Dr. Paul, of the Pharmaceutical Society, has examined several of these substances, with the result that he finds considerable quantities of morphine in many of them,—quite sufficient to bring them under the heading of scheduled poisons. This has been now represented to the Solicitor to the Treasury, who will probably take the matter up. The public *will* swallow any remedy provided it be sufficiently advertised, but they should be protected, as far as possible, by warnings as to the dangers they run.

Gout of the penis is certainly one of the rarest varieties of the disease, and can have been but seldom met with. A case was, however, described by Sir Dyce Duckworth at a recent meeting of the Clinical Society. The patient was a gouty subject, and was admitted into hospital with arthritis of several joints, including those of the great toes, and with moderate pyrexia. Five days before admission the attack had commenced suddenly, and on the next day the patient had awoke with great pain in, and firm erection of, the penis. This priapism persisted, entirely uninfluenced by internal or external treatment, and was accompanied by frequent fresh outbreaks of gout in the joints. It only began to subside, together with the other symptoms, after persisting, without intermission, for twenty-one days. Although gouty inflammation of the bladder, prostate, and testes is not uncommon, it is most rare for the disease to attack the body of the penis. Its probable pathology was suggested to be thrombosis of the veins in the corpora cavernosa, with mechanical hinderance to the outflow of blood from the organ.

Professor Liebreich will not be able to say that, when his remedy for phthisis—cantharidinate of potassium—is finally rejected as useless, it has not had a fair trial. Messrs. Fenwick and Welsford, of the London Hospital, report their results obtained with this substance, their conclusions being based on observations of sixteen cases. Their note ends as follows: "In the majority of cases recorded, such symptoms as appetite, sleep, cough, and even night-sweats, were considerably improved by the use of cantharidinate of potassium. In our own cases the accounts given by the patients were always extremely encouraging, though they tallied ill with the steady advance in physical signs." In one case they injected water with equally favorable apparent effect. Their final conclusions are in no way favorable, for they find,—

1. That cantharidinate of potassium is absolutely useless in producing any obvious beneficial effect in pulmonary phthisis.

2. That in doses exceeding .2 milligramme it is apt to induce albuminuria, with pain in the loins, strangury, and even hæmaturia.

3. That for the latter reason it should in no case be used without most careful supervision, and that it is, therefore, ill-adapted for out-patient practice.

4. As far as their observations went, they seemed to show that the remedy was equally useless in laryngeal tuberculosis, notwithstanding reports to the contrary.

I cannot close this letter without a reference to the sad event which has thrown our whole nation into mourning. The death of Prince Albert Victor from catarrhal pneumonia, following upon influenza, adds another touch of sadness to the history of this very wide-spread and fatal epidemic. It seems highly probable that the prince caught his fatal illness while attending the funeral of his relative, Prince Victor of Hohenlohe. This once more draws attention to the unreasonableness of our method of arranging the burial service, which encourages the mourners to stand bare-headed round the grave during the recitation of the final prayers, and that quite regardless of weather. Truly, we can understand how it is that "funeral begets funeral."

*AN ETHEREAL SOAP.**

To the Editors of the THERAPEUTIC GAZETTE:

DEAR SIRS:—I beg to call the attention of your surgical readers to a very excellent liquid—"ethereal soap"—which has lately been devised by John Johnson, a nurse in the surgical clinic of the Jefferson Medical College Hospital. After considerable experience, I find it by far the best soap that I know for cleansing the hands and softening them. It also assists materially in destroying odors about the hands. Mercuric chloride can be dissolved in it in the ordinary proportions. I use the soap constantly, both in the clinic and in my office, with great advantage.

Very truly yours,

W. W. KEEN.

THE PAN-AMERICAN MEDICAL CONGRESS IN THE UNITED STATES OF COLOMBIA.

Pursuant to nominations by Dr. Pedro M. Ibañez, of Bogota, member of the International Executive Committee for the United States of Colombia, the following organization of the Pan-American Medical Congress has been effected in that country:

Vice-President.—Dr. Pio Rengifo, New York.

Secretaries of Sections.—General Medicine, Dr. Ignacio Gutierrez Ponce, Paris; General Surgery, Dr. Rafael Rocha Castilla, Bogota; Military Medicine and Surgery, Dr. Abraham Aparicio, Bogota; Obstetrics, Dr. Joaquin Maldanado, Bogota; Gynæcology and Abdominal Surgery, Dr. José M. Buendia, Bogota; Therapeutics, Dr. Manuel Plata Azuero, Guaduas; Anatomy, Dr. Joan D. Herrara, Bogota; Physiology, Dr. Antonio Bargas Vega, Bogota; Pathology, Dr. Nicolas Osorio, Bogota; Diseases of Children, Dr. Art. Gomez Calvo, Bogota; Ophthalmology, Dr. Proto Gomez, Bogota; Laryngology and Rhinology, Dr. Luis Fonnegra, Bogota; Otology, Dr. Carlos Esguerra, Bogota; Dermatology, Dr. Daniel E. Coronado, Bogota; Orthopædics, Dr. Juan E. Manrigue, Bogota; Naval Hygiene and Quarantine, Gabriel I. Castaneda, Bogota; General Hygiene and Demography, ———; Mental and Nervous Diseases, Dr. Pablo Garcia Medina, Bogota; Oral and Dental Surgery, Dr. Guillermo Vargas Paredes, Bogota; Medical Pedagogics, Dr. Jorge Vargas, Bogota; Medical Jurisprudence, Dr. Leoncio Barrets, Bogota.

Auxiliary Committee (each member being the official representative of the Congress in his respective city).—Dr. Nicolas Osorio, Dr. Andrés Posada Arango, Dr. Jorge E. Delgado, Dr. Eugenio de la Hoz, Dr. Domingo Cagido, Dr. José Manuel Rodriguez, Dr. Paulo Emelio Villar, Dr. Felix M. Hernández, Dr. Rafael Calvo, Dr. N. Ribón, Dr. Milceades Castro, Dr. Cayetano Lombana, Dr. José M. Martinez, Dr. Isaias Saavedra, Dr. Severo Forres, Dr. N. Villa, Dr. Everisso Garcia, Dr. Miguel Caicedo, Dr. Emilio Villamizar.

The following medical societies have been elected as auxiliaries of the Congress,—viz., Academia Nacional de Medicina, Academia de Medicina de Medellin, Sociedad de Medicina del Cauca.

The following journals have been designated as official organs of the Congress,—viz., *Revista Médica*, Bogota; *Revista de Higiene*, Bogota; *El Agricutor*, Bogota; *Boletin de Medicina del Cauca*, Cali; *Anales de la Academia de Medicin de Medellin*, Medellin.

The expressed wish of the profession of the United States of Colombia is for a date of meeting during the Colombian Exposition.

CHARLES A. L. REED,
Secretary General.

CINCINNATI, January 17, 1892.

* This preparation is now manufactured by Parke, Davis & Co.